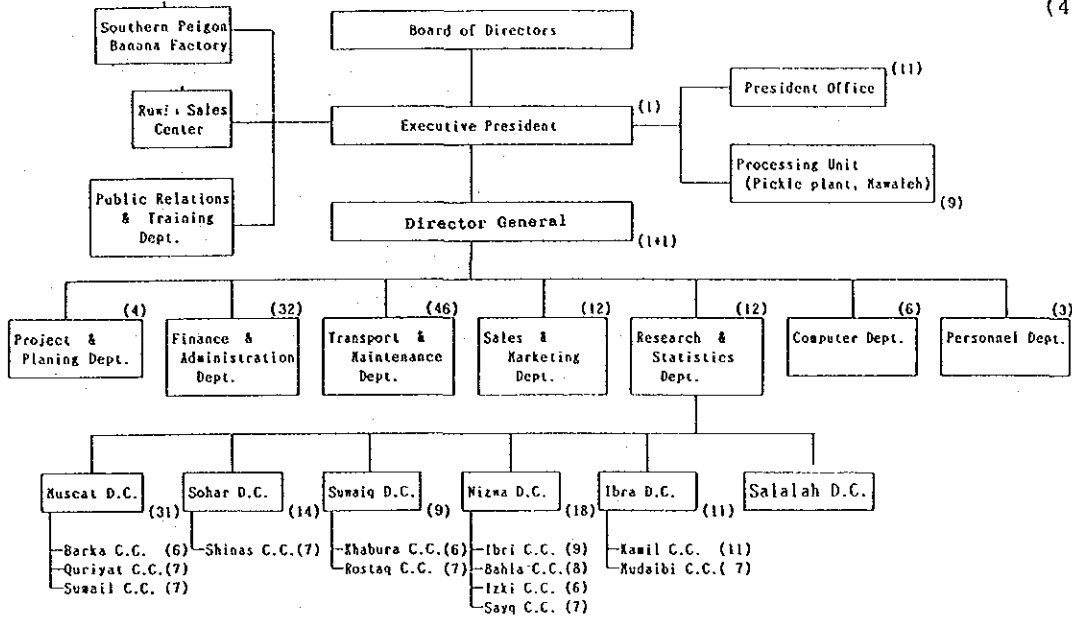


PAMAP ORGANIZATION

PRESENT PAMAP ORGANIZATIONAL STRUCTURE

Number of Staff
in June 1990
(414)



FUTURE PAMAP ORGANIZATIONAL STRUCTURE

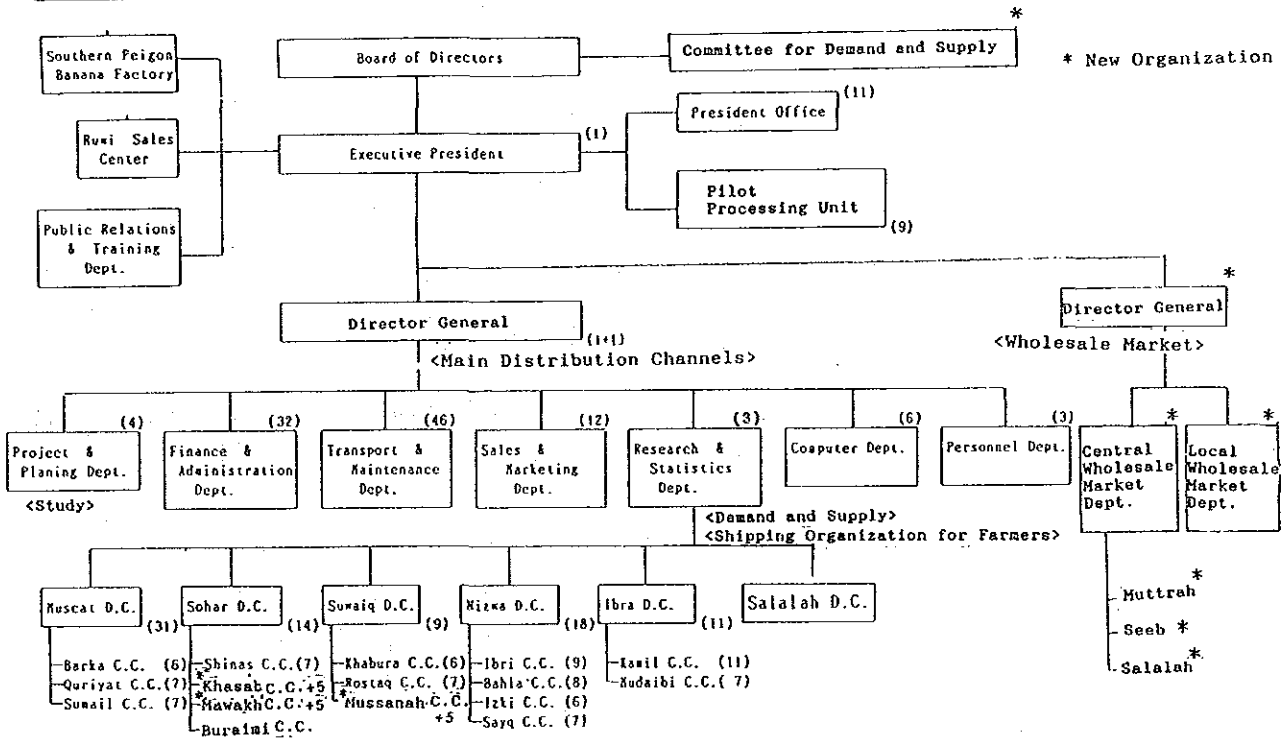


Figure 4.4.1 PAMAP Future Organizational Structure in 2000

public notification about markets, etc. must be performed to establish wholesale markets given the lack of Omani experience in this area. Rushing must be avoided.

A target by 2010 of 50% handling of all agricultural produce by wholesale markets was studied. Table 4.4.3 shows the market scale for each urban center. The study of the scale for local wholesale markets is as shown in Table 5.2.8. The total planned amount of agricultural products to be handled in the wholesale markets in the 6 cities by 2000 is 94,000 tons (see Table 4.4.4). This would be 25% of total agricultural product volume (see Table 4.4.5). These are considered appropriate targets for the envisioned modernization of the distribution system in Oman over the next 10 years.

(2) Development Strategy

A conceptual sketch for the development target and the strategy for the distribution sector are depicted in Figure 4.4.2.

(a) Establishment of the wholesale market

The staged development approach should be employed to smoothly transform the present distribution system into the expected future system, which will operate through the wholesale market. This market should be established on the premise that various kinds of agricultural produce are collected from numerous production sites in the country. The methods of collection can be classified as follows:

- low-level shipment, or short-distance transportation from farm-gate to town, and
- Nation-wide distribution, or long-distance transportation from towns to urban areas as main distribution channels.

The improvement of both of the above is quite essential for the physical distribution of agricultural produce in the market. The wholesale market should be established gradually, through the

Table 4.4.3 Establishment of Wholesale Market

REGION TOWN	MUSCAT		JANUBIYA		BATINAH		SHARQIYA		DAKILIYA		DHAHIRA		TOTAL
	MUTRAH	SEEB	SALALAH	SOHAR	RUSTAQ	SUR	IBRA	NIZWA	SAMAIL	IBRI	BURAIMI		
POPULATION	248,000	174,000	190,000	143,000	101,000	128,000	44,000	126,000	88,000	175,000	93,000	1,510,000	
VOLUME PER DAY (TONS)	179	126	137	126	91	91	32	91	64	126	64		
WHOLESALE MARKET													
BUILDING AREA (m ²)	6,185	4,523	4,862	4,523	3,278	3,278	1,334	3,278	2,412	4,523	2,412	40,608	
PARKING AREA (m ²)	7500	5,500	5,750	5,500	4,000	4,000	1,750	4,000	3,000	5,500	3,000	42,000	
SITE (m ²)	30000	22,000	23,000	22,000	16,000	16,000	6,800	16,000	12,000	22,000	12,000	167,800	
CONSTRUCTION YEAR	1,995	1,997	1,997	1,998	2,002	2,000	2,002	2,000	2,002	1,998	2,002		
COST (1000 R.O.)	2,527	1,845	1,979	1,844	1,339	1,339	551	1,339	989	1,844	989	16,585	

Table 4.4.4 Dealing Volume in Wholesale Market in 2000

CENTRAL W/M	3 PLACES (MUTRAH, SEEB, SALALAH)	POPULATION NUMBER 612,000	29%
REGIONAL W/M	4 PLACES (SOHAR, SUR, NIZWA, IBRI)	572,000	27%
(TOTAL POPULATION IN OMAN IN 2000 : 214,6000)			
RATIO VIA W/M	50 %	57 %	100 %
TOTAL DEALING VOLUME IN W/M (TON)			
	94,000	124,000	18,800
	*	**	***

Table 4.4.5 Distribution Volume by PAMAP

ITEM	1988	1995	2000	REMARKS
	ACTUAL	PROSPECT		
	(4)	(5)	(6)	
# ALTERNATIVE-1	17,669	38,686	94,504	*
RATIO FOR				
PAMAP/PROD.	8%	12%	25%	
INCREASE IN PAMAP	100%	219%	535%	
ALTERNATIVE-2	17,669	51,581	124,745	**
RATIO FOR				
PAMAP/PROD.	8%	16%	33%	
INCREASE IN PAMAP	100%	292%	706%	
ALTERNATIVE-3	17,669	80,596	189,008	***
RATIO FOR				
PAMAP/PROD.	8%	25%	50%	
INCREASE IN PAMAP	100%	456%	1070%	
ALTERNATIVE-4	17,669	128,953	283,512	
RATIO FOR				
PAMAP/PROD.	8%	40%	75%	
INCREASE IN PAMAP	100%	730%	1605%	
ALTERNATIVE-5	17,669	161,192	283,512	
RATIO FOR				
PAMAP/PROD.	8%	50%	75%	
INCREASE IN PAMAP	100%	912%	1605%	

Table 4.4.6 Production Amount

ITEM	1988	1995	2000
	ACTUAL	PROSPECT	
	(1)	(2)	(3)
1. VEGETABLES	133,909	172,950	204,005
2. TUBERS	5,900	19,382	22,754
3. FRUITS	167,442	248,768	286,500
DATES	100,000	126,651	145,020
4. SPICES	5,553	7,934	9,777
5. TOTAL	212,804	322,383	378,016
INCREASE IN PRODUCTION			
	100%	151%	178%

NOTES : ITEM5=1+2+3+4-DATES

SOURCE : JICA TEAM ESTIMATE

expansion of, or reorganization of the existing organization and its functions, without affecting the present distribution structure, its personnel, and the farmers. The development should be as follows:

1) 1st Stage: To conduct a study on establishing a wholesale market in order to study and expand the distribution volume of PAMAP and to train staff of PAMAP for implementation of the pilot, i.e.:

- A study is to be conducted to establish a wholesale market,
- Expansion of distribution volume required in order for PAMAP to maintain wholesale market functions during the preparatory stage of establishing a market, and
- To increase the distribution volume, one way would be to facilitate shipment of the crops subsidized with input materials particularly to PAMAP.

2) 2nd Stage: To commence the functions of the wholesale market by PAMAP, and to carry out detailed design for the wholesale market.

- Based on the results of the activities in the 1st Stage, the pilot wholesale market suitable for Oman is to be inaugurated.

3) 3rd Stage: To construct and operate the central and local wholesale market by PAMAP and private sector

- In the beginning, the central wholesale market operation is to be conducted by PAMAP using Muscat and Salalah as the consumption sites for main distribution channels,

- PAMAP is to construct or improve the market facilities in both the central and local wholesale markets,
- Based on the operation method developed by PAMAP in the 2nd Stage, PAMAP provides guidance and supervision to the wholesale traders in order to strengthen physical distribution and price determination functions of the wholesale market, and
- In parallel with the above activities, local markets are operated by the private sector.
- The operating body for each wholesale market will be decided by the result of the study at the 1st stage.

(b) Measures for adjustment of the supply and demand relationship

The measures to be taken for the adjustment of supply and demand aim to provide stable production and planned delivery of agricultural produce. There are two possibilities: before cultivation and after cultivation and they are categorized and clarified below:

- (i) The government prepares the demand forecast based on the production and consumption trends, and announces it to the farmers for reference for their planting and shipping. Specifically:

1) Indirect adjustment for production and shipment, which is summarized as follows:

- to prepare a food supply and demand program for all food which is the base of the agricultural

production plan,

- to prepare a supply and demand forecast for principal foods within the above-mentioned program, and
- to announce the information to the farmers for reference for cropping varieties and areas to be planted, and for timing of planting and harvesting.

2) Direct adjustment for production and shipment, which would be done under a future project for planned production and delivery of principal agricultural produce, can be summarized as follows:

- to determine the specific agricultural produce which is to be supplied on a regular basis, and is determined by the supply and demand forecasts,
- to guarantee a stable profit for the farmers, and
- to require farmers to follow the adjustment schedule for production and shipment as directed by PAMAP

(ii) In cases of excess production or marked drops and rises in the prices of produce, a future project for stabilizing shipments of agricultural produce to the commercial farms and large-scale farmers would be as follows:

- incentive funds for the immediate shipping of produce, at the time of the marked rise in price, and
- price sustaining funds for adjusting shipments at the time of a market drop in the price of produce and,
- the preparation and publication of supply and demand

forecasts by PAMAP. Direct adjustment for production and shipment before and after cultivation is to be studied to identify suitable measures for Oman.

A study of basic data such as agricultural production, distribution, and consumption, is essential for the formulation of both of the above-mentioned projects. Moreover, data comparison is also essential. With respect to the collection of basic data conducted by MAF, PAMAP and ROP, an examination is recommended to guarantee efficient and effective collection and processing of the necessary data. PAMAP is in charge of the collection of data for distribution and consumption.

- (c) Promotion of distribution efficiency and establishment of shipping organizations for farmers

The promotion of distribution efficiency refers to the efficient delivery of agricultural products produced on the farm to consumers, through such activities as storage, transportation and distribution, paying particular attention to time, place, quality and cost of agricultural produce.

In order to reduce the distribution cost, or to distribute with minimum storage, demand adjustments should first be conducted in the production and shipping stage. In the next stage, after shipment, an efficient delivery program should be planned between each distribution center and each market. In addition, the time required for distribution from producer to consumer, should be minimized, taking into account the nature of the agricultural produce, i.e. its storability, etc. Whichever technique is employed, storage generally decreases freshness, and raises distribution costs of agricultural produce. Based on this, the following is required of PAMAP:

- to make an effort to plan an efficient delivery program and to deliver the agricultural produce according to plan, and

- to conduct appropriate management, training and implementation for using refrigerating stores, in order to efficiently distribute products with minimum storage.

The new stores and pre-cooling stores to be established to cater to the expansion of PAMAP's distribution, as well as to satisfy the needs of consumers with respect to quality and freshness, are to be planned and discussed in the facility development plan for main distribution channels.

(ii) Transportation and Establishment of Shipping Organizations for Farmers

Collection and shipment of agricultural produce can be classified into the following two stages:

1) 1st Stage: From farmer to PAMAP or wholesale traders

In this stage, a reduction in shipping costs and an increase in the amount being shipped by farmers, are targeted through strengthening the shipping organizations for farmers which assist the small-scale farmer shipments. The transportation industry is not well developed due to the relatively limited volume of goods distributed in the country. Accordingly, PAMAP or another public organization is required to collect the produce for the small farmers, or to assist them until farmer shipping groups are organized. The method for strengthening such shipping organizations for farmers is to be studied in relation to the above issues, and subsequently carried out.

2) 2nd Stage: From PAMAP or wholesale trader to retail stores or supermarkets through the wholesale market

In this stage, nation-wide transportation system development for the main distribution channels is targeted for. This transportation system must be studied so as to reduce

transportation costs, provide a more efficient delivery system between the respective shipping sites for produce, and to provide more balanced and constant shipping volumes controlled by the previously discussed demand adjustment measures.

The use of refrigerator cars for transportation is effective because of the high atmospheric temperature in Oman; however, maintaining the temperature of the produce is complicated by loading and unloading. The operations to maintain low temperature at which the produce is kept also results in higher transportation costs.

It may be best to introduce a cold-chain system, in which agricultural produce is pre-cooled immediately after harvesting, and then transported by refrigerator car. This system will make it possible to deliver high quality agricultural produce to consumers. In addition, the study on the transportation system is necessary from the view point of consumer requirements in terms of quality.

(iii) Distribution techniques

Distribution techniques, such as grading and packing should be studied. Since agricultural development aims for an increase in production and quality in the future, a greater variety and larger volume of produce will require a new system for main distribution channels.

Grading quality, as well as standardizing the size of the produce is an essential step towards rationalization and simplification of distribution activities. As too-strict grading and selection of the produce, however, result in confusion in production and distribution, an appropriate standard should be established for the selection process, taking into account farmer production techniques and consumer requirements for quality.

In grading and selecting produce, particular emphasis must be placed on the following:

- purchasing the produce from farmers at the price determined according to fairly-graded quality, and
- supplying the produce to the consumers at a price set according to that graded quality.

Of course, the importance of grading and standards should be duly published and made available to the producers and the farmers. Shipment to PAMAP should be encouraged by government policy in order to expand PAMAP's distribution volume. Non-standard produce may be included in such shipments. In order to enhance farmer production incentives, as well as to improve the size of farmer shipments, selective purchases should be made of both standard and non-standard produce. Such non-standard produce should be used as raw material for processed agricultural products.

At the same time, packing is also essential if the products are to maintain their quality and demand at a reasonable price. Packing is classified depending on whether packing occurs at the farm-gate, the distribution stage, the wholesale market, or the retail stage. Low-priced, domestic packing material should be used.

Efficient distribution will be achieved from the aspects of cost and quality through the introduction of well-balanced techniques in grading, packing, transportation and storage. The training to improve these distribution techniques is also of vital importance.

(d) Facilities development

The physical distribution route between production and

consumption will change according to the future increase in production, and changing demographics. More efficient distribution is to be achieved by using the optimum physical distribution route, determined by the relationships between farm-gate and collection centers in the region, and between respective collection centers and the consumer. Re-organization for more efficient arrangement of the collection and shipping centers for the future main distribution channels is to be studied, particularly in terms of appropriate scale and facilities, according to the conditions in each region and the role of the center there.

4.4.2 Agricultural Produce Processing

(1) Agricultural Production Forecast and Agricultural Product Processing

According to the supply and demand forecast for agricultural produce for the next 10 years, only a few types of produce which are dealt with by the various proposed projects will realize 100% self-sufficiency. This is clearly indicated in Table 2.2.11, Volume 5.

Mainly because of the prohibitive climatic condition in Oman, even if the timing of the planting and harvesting of the proposed cropping pattern shown in Tables 4.1 to 4.7 in Volume 5 is shifted to some extent, the annual gross production for shipment is concentrated in a 3 to 4 month period. Due to the seasonal characteristics of agricultural produce, a drop in price and in the amount sold has been observed recently for several crops and has resulted in dampening the farmers' production incentives.

With respect to the production plan for the year 2000, the monthly excess production of agricultural produce at present is analyzed in Table 4.4.6. This analysis illustrates that excess production occurs for bananas and garlic for several months. However, it is felt that a drastic drop in price will not occur because of their present exporting and storability.

Crops, other than the ones analyzed above, which are believed to be over-produced are dates and limes. The processing of agricultural produce such as the pickling of dates, limes and vegetables, is done in Oman as a countermeasure against excess production, low quality, damage, and low price.

By the year 2000, provided that a suitable supply and demand relationship is achieved for produce, productivity and profitability of the produce will be greatly improved. This produce should be used first for fresh food rather than for processed food.

At present, MAF is studying several plans: the complex processing factory for dates, limes and tomatoes, the factories for dates, handicrafts, pickled vegetables and fruits, and dry dates, and for the coconut processing factory. The following points ought to be taken into consideration while carrying out the study:

- (a) Stable and economical supply of agricultural produce for the necessary raw material,
- (b) Maintenance of high operation efficiency of the factory by the introduction of a complex agricultural produce processing industry,
- (c) Training of technicians and workers in the agro-processing industry, which requires the introduction of new technology and facilities, and
- (d) The government's financial, institutional and human support during the initial operation period.

(2) Potential of New Agricultural Produce Processing

- (a) There are a number of restaurants and hotels in the urban area. In these food service industries, the proportion of the cost of food material is estimated to be almost 40% of the entire sales. Therefore, procurement of appropriate food material is vital and

directly affects, not only the management, but also taste and service which are the primary considerations of the food service industry. In line with the further diversification of the kinds of meals available, a more stable supply of various kinds of food materials is required for the food service industry in the future. The present passive procurement, as supplied by wholesale traders or supermarkets will not meet future requirements. Accordingly, it is important to develop direct supply sources through specific sales routes.

In addition, a supply of raw material of the agricultural produce and preliminary processing of vegetables, etc. (such as shredding lettuce) may be required in order to save money in the food service industry. Accordingly, as part of formulating the integrated food material supply system, the development of a system for providing cut vegetables may be proposed as a subject for a feasibility study.

On the other hand, in spite of their taste and usefulness as raw food material, sub-standard crops are either not harvested at all or else cannot be sold even at low prices due to their being sub-standard. Such crops could be used for processing.

- (b) The development policy of the Fourth Five-year Development Plan will include the promotion of a national industrial economy through the increase of employment opportunities created by highly productive industrialization, using domestic raw materials.

However, the policies and measures for agricultural production and agricultural structure improvement are not adequate for the expansion of the farm management scale or for enhancing the agricultural management methods of the small-scale farmers.

Support for the farmers, and the increasing of their income will be achieved through providing employment opportunities in the region. Such employment opportunities can be created by

encouraging an industry which uses locally available resources, i.e. a rural industry which produces a specific agricultural product in the region, or goods produced by processing that product.

At the moment, however, it is recommended that a feasibility study be conducted, and that an experimental station be set up, or else measures should be taken to enrich regional resources through development of specific produce for each region.

4.5 Subsidy Institution

4.5.1 Development Target

(1) Price Policy

The major roles of the price policy are "price support" for optimization of price levels, and "price stabilization" to control fluctuations. More precisely speaking, price support serves to generate income and to improve income distribution, while price stabilization serves to adjust the supply-demand ratio. The problems and arguments which could result from the introduction of such a price policy are described below.

- 1 Problem of financial burden. There may be an argument for applying this financial source to other, more constructive policies.
- 2 Opinion against the highly-subsidized prices of domestic agricultural produce. Increased price disparity between domestic and imported produce.
- 3 Income disparities may be increased within rural society because the price policy is generally extended equally to every kind of producer.

In addition, the introduction of the price policy may adversely affect the production policy and structure policy. In connection with the production policy, more price support endangers the balanced supply-demand ratio and results in overproduction. Therefore, a price policy which maintains the ability to adjust the supply-demand ratio should place particular emphasis on its relationship with the production policy. The price formation and distribution policy should be extended intensively over specific, appropriate groups through converting the price support policies into subsidies, like social welfare.

In connection with the structure policy, an excessively highlighted price policy may hamper the improvement of the agricultural structure and, accordingly, production would remain low.

A price policy which only stresses the income policy (i.e. formation and distribution) needs to be studied comprehensively, with respect to other policies. However, which functions of the price policy are to be most important should be judged by the general economic situation, as well as by the supply-demand trends for agricultural produce and the agricultural production forecasts.

Appropriate income formation and distribution should be executed by policies other than the price policy at a time of price declination due to a failure in the supply-demand adjustment. These will be executed by the price policy only when prices decline due to good weather and a resultant good harvest, or when incomes decline due to a bad harvest.

The price policies are classified as follows, depending on the degree of intervention of the market mechanism:

1 Market control type:

Administrative price institution by which the government regulates the entire distribution volume in the market and determines the buying and selling prices.

2 Market price oriented type:

Under the premise of using the free market for price formation:

There are two kinds of programs: the price stabilization program in which the market price is stabilized within a specific price range by means of a buying-selling operation conducted by the government-related organization; and the minimum price guarantee program which guarantees a specific

minimum cost level.

These programs only aim at agricultural produce which is standardized, storable and easily purchased in the international market. It is difficult for this program to select the appropriate time for buying and selling, although that tends to encourage price fluctuations rather than stabilization.

3 Market price compensation type:

Under the premise of using the free market for price formation:

Application of subsidies so that the price differential between the standard price and the producer's selling price is supplemented; or the program for stabilizing funds so that a part of the price differential is supplemented by the funds accumulated by the producers, etc.

These measures focus on less-storable agricultural produce because buying is not conducted and therefore, storage is not required. The latter program aims at the realization of a supply-demand equilibrium price, i.e. the price which places marked emphasis on the market mechanism.

This program is not for price support which aims primarily to supplement income. This is the point at which it is different from the other price policies.

(2) Trade Policy

In general, the volumes of import and export, and the domestic production are determined partly by the domestic and international market mechanisms and are influenced by government intervention with agricultural produce trade policies, i.e. policy instruments such as trade barriers and customs duties which directly regulate the import and export of agricultural produce.

The interest caused by such agricultural protective policies sometimes causes serious antagonism within the nation, e.g. while the agricultural producers are benefiting from the policy, consumers are at a disadvantage because they must purchase agricultural produce at a domestic support price which is higher than the price of the imported produce. Even in this case, however, the consumer will benefit, from a long-term point of view, from several results such as national food security, preservation of national land and living circumstances, activation of the rural and regional economies, etc.

The measures employed under the trade policies are as follows:

1 Customs duties:

customs duties, import surcharges and variable import surcharges.

2 Trade barriers:

import volume controls, import quotas, import deposits and export bounties.

3 Indirect trade barriers:

epidemic controls, safety controls and hygiene controls.

At the same time, among other measures in the production policies, the domestic producer protective measure (the subsidization of agricultural input materials to reduce production costs) is not disadvantageous to the consumers or to equality in social welfare, though it is as advantageous to the producer as the above protective trade measures.

In spite of such advantages in the subsidy measures, the reason why the protective trade measures are generally employed is primarily that they are less of a financial burden compared to the subsidy

measures.

The comparison of the customs duties and subsidy-to-production cost indicates that the subsidies are more advantageous than the customs duties from the point of view of protecting local production, while the customs duties are better than the subsidies for simply reducing import volume.

The basic course of the trade policy is thus determined on the basis of the integrated agricultural policy, while imports and exports are regulated by the fiscal and financial policies outlined below.

(3) Financial and Subsidy Policy

The methods by which the financial and subsidy policies carry out measures for the achievement of the agricultural development policy are as follows:

- 1 Subsidies as a direct measure
- 2 Interest subsidies extended by institutional credit
- 3 Preferential treatment in taxation

Since the financial and subsidy methods depend on national revenue and are accordingly financially limited, they must be distributed efficiently and fairly. As is described in (b) above, for the producer, or farmer, the effect of a protective agricultural measure such as a subsidy is the same as that of a protective trade measure. The farmer does not put consumers at a disadvantage and he maintains social welfare standards, though it is more of a financial burden. On the other hand, protective trade measures are less of a financial burden, but they reduce the economic welfare of both consumers and society as a whole. Thus, both pure economic efficiency, and political and administrative efficiency should be taken into account in the selection of these measures.

As one policy method, a subsidy aims, on the basis of the government's administrative requirements, to do the following:

- 1 Provision of services for public capital investment,
- 2 Supplement of the market mechanism, and
- 3 Redistribution of income and mitigation of regional disparities.

In terms of the focuses of the subsidies, the agriculture-related subsidy can be categorized as follows:

- 1 Social overhead capital:

agricultural infrastructure development, agricultural structure improvement measures and distribution facility development.

- 2 Individual industry measures:

price stabilization measures, promotion of agriculture and livestock.

- 3 Education and cultural concerns:

agricultural improvement and extension services projects, and agricultural technology development.

- 4 Social welfare concerns:

livestock epidemic prevention.

- 5 Others:

agricultural credits, food distribution measures and

statistical information system improvement.

An institutional credit is one of the following governmental policy credits for the execution of agricultural policies:

- direct loan from the public finance department, and
- indirect, preferential measures by means of the financial instruments for lending sequential funds and commercial funds through:
 - debt compensation,
 - quantitative supplement of funds, and
 - qualitative supplement of funds, i.e. interest rate or loan period, etc.

In general, regular credit is not applicable to agriculture due to agriculture's low profitability, which results in characteristics of the agricultural production structure. Accordingly, the necessary money is extended, as a subsidy, from reserves of the national revenue, to the parts of the project which are verified as public goods, etc. The remaining money for the project or the money approved as necessary for the project in line with the policy objectives, is procured mostly from the subsidy measures using institutional credits such as long-term, low-interest loans. The last portion is borne by the beneficiaries.

The Institutional credit policy is characterized by the following:

- 1 Since it is a policy induced by means of indirect policy instruments, achievements of the policy, or its effect on the agricultural income generation is accomplished with a certain time lag and it is therefore weaker in effect than subsidy measures.
- 2 Since the policy objective can be accomplished by financial instruments, avoiding the national financial source, the

initial financial burden is lighter, while subsidiary objectives can be expanded.

The institutional credit, which is long-term and low-interest, requires a government subsidy to cover the inevitable backlog which arises due to:

- the loan interest rate being lower than the commercial interest rate, and
- the loan period being so long.

The practical application of the financial and subsidy policies should be carried out while taking the following into consideration for each project within the agricultural sector:

- public and private roles in the project,
- social aspects of the financial burden,
- investment cost efficiency of the project,
- composition ratios of subsidy and institutional credit, and
- achievement rate and speed with which the objective can be attained.

4.5.2 Development Strategy

(1) Price Policy

The price support policy is not in place at present in Oman. PAMAP determines the buying and selling prices by observing trends in market prices. The selling price is, generally, determined by adding the expenses for storage, transportation and distribution as well as profit to the buying price. However, since PAMAP's selling price does not include any profit, due to its role as a public

organization, there is a negative margin between PAMAP's buying and selling prices. This negative margin is subsidized by the government. The reasons why this is required are the increase of transportation cost corresponding to an expansion of the distribution system and the rise of storage cost, which makes it necessary to adjust shipments, and inefficient distribution functions.

Although PAMAP's distribution volume is only a portion of the entire volume of the country, its buying price still follows the trend of the market price, because of the above situation. The total amount of agricultural produce purchased by PAMAP in 1988 at a price lower than the production cost shown by DAS (MAF), accounts for 10% of the volume and 3% of the expenses of PAMAP's entire distribution process. The comparison of production cost and buying price indicates some produce with extremely high, or low prices (refer to Table 5.8.4, Volume 2). Annex Figures 5.8.2 to 5.8.17 show less fluctuations in monthly prices, in spite of large fluctuations in domestic volume of several crops in 1988 such as bananas, coconuts, cucumbers, garlic, onions, papayas, potatoes and tomatoes. The tables also show that modern management is financially feasible for most crops provided that various proposed agricultural production measures are taken. It is, therefore, regarded that the adoption of the price support policy is not an absolute necessity for income generation for, and income distribution to the farmers, except in the case of some crops. However, in order to increase production to meet the demand for each crop, the introduction of the price policy should be considered. It is necessary to conduct further analysis of the trends of monthly production volume and the price of each local crop. The price policy is also necessary for the promotion of wheat production.

(2) Trade Policy

The comparative analysis of Annex Figures 5.8.2 to 5.8.17 of Volume 2, which show the monthly price fluctuations for imported and local produce in 1988, reveals that the price of the imported produce is higher than that of local produce particularly for bananas,

coconuts, cucumbers, garlic, onions, papayas, potatoes and tomatoes. The result of the field interview survey conducted in November 1988 also indicated the same trend. The price of imported produce is about 1.5 times that of the local produce. Since a considerable volume of agricultural produce is imported from the UAE without customs duties, it is recommended that the analysis continue.

PAMAP has issued import licenses for agricultural produce since 1987. When a trader intends to import agricultural produce, he may do so only after obtaining a permit for the variety and quantity of the produce to be imported. PAMAP issues the license according to the inventory of the agricultural produce which corresponds to the produce applied for by the trader. This is not a strict protective trade measure at the border, so much as the regulation of imported volume, based on supply-demand balance determined by the analysis of trends of domestic production and consumption of the agricultural produce. PAMAP does not have data regarding the production, distribution and consumption covering the country which are required for effective execution of protective trade measures at the border.

Provided that the agricultural production increases and the distribution volume increases accordingly, the adjustment of the supply-demand ratio for agricultural produce, including imported products, is indispensable for the promotion of well-balanced agricultural development.

Therefore, practical measures for a trade policy should be studied for the purpose of increasing domestic agricultural production, as well as to generate income for farmers within the predicted socio-economic conditions in Oman. The present import license system and tariff policies should be maintained for the time being. For this purpose, it is essential to collect basic data connected with production, distribution and consumption.

(3) Financial and Subsidization Policy

Two types of financial policies are carried out in Oman. They

are: governmental subsidy, and financing by OBAF. The former type consists of two schemes: the subsidy for improving infrastructure, i.e. the construction of recharge dams, repair work on aflaj and improvement of irrigation systems; and one for agricultural input such as chemicals, fertilizers and machines. Judging from the contents of the financial policy, it is obvious that the government of Oman gives a high priority to the subsidy for agricultural inputs.

The subsidy for agricultural outputs will give farmers incentives and increase agricultural production; however, it will cause the income distribution in rural society to be unequal, as discussed in 4.2.5 (1) (a). In order to subsidize agricultural outputs smoothly and strictly, a market mechanism should be well-functioning in deciding the gate-prices of agricultural products, and a price checking system should be established. Furthermore, detailed data on production costs of all products and all farming patterns should be collected.

At present, this kind of system has not been established, nor has such information been acquired in Oman. Accordingly, establishment of a fair market system and the institutions for basic data collection concerning agricultural production, production costs, gate-prices, wholesale prices and consumer prices should be encouraged in order to equip the institutional organizations and economy for the introduction of output subsidies.

Consistent with the Third Five-year Development Plan, the 10-year Agricultural Development Plan puts high priority on the subsidies for improving infrastructure. The subsidy for agricultural inputs for small-scale farmers will continue to reduce production costs as well. This could also be used as an incentive for farmers in order to improve production of specific crops which the government intends to promote corresponding to the changes in demand for agricultural produce. At the same time, it is necessary to make a continuous effort to collect relevant, basic data, considering the imminent introduction of an appropriate output subsidization program.

As for the financing by the OBAF, programs which finance the following new projects should be introduced, in addition to the existing ones.

The following projects are suggested in the Master Plan;

1. Project for Introducing Modern Irrigation Systems

Increase harvest area by introducing drip irrigation, conservation methods, and more efficient use of irrigation water.

2. Project for Promoting Intensive Livestock Farming

Subsidize small-scale compound livestock farmers on their initial investments on animal sheds and grass seeds.

3. Project for Improving Management of Small-Scale Farmers

Subsidize small-scale farmers on the cost of cleaning up date palms, and constructing facilities for vegetable production like water tanks and irrigation facilities.

Irrigation facilities will be modernized and the management methods of small-scale farmers will be improved and stabilized by these projects.

CHAPTER 5

AGRICULTURAL DEVELOPMENT PLAN

CHAPTER 5 AGRICULTURAL DEVELOPMENT PLAN

5.1 Development Investment in Agriculture

(1) Current Government Investment in the Agricultural Sector

Investment by the government in agriculture in 1988 was 1.8 % of the total government investment. Although roughly the same as that targeted at the manufacturing sector (1.7 %), it is low in comparison to that invested in petroleum (21.0 %) and natural gas (6.2 %) as shown in Table 5.1.1.

In terms of infrastructure as well, less emphasis was given to the agricultural sector. Outlay for irrigation and water resources facilities was only 1.3 % of the total government investment, as compared with 6.0 % for municipal services, 5.7 % for roads and 4.7 % for various educational infrastructures.

This low investment proportion in the agricultural sector can be attributed to a greater priority by the government, since 1970, for economic modernization through development of transportation, telecommunications, educational and other facilities related to daily life. This resulted in relatively lesser emphasis on investment in primary production sectors, particularly the less efficient agricultural sector.

However, a growing realization of the importance of the agricultural sector in the late 1970's prompted the government to form, in 1979, an independent Ministry of Agriculture and Fisheries from the former Ministry of Fisheries, Petroleum and Minerals.

Nevertheless, priority for the agricultural sector has remained low. In the Third Five-year Development Plan beginning in 1986, the government budget allocated to the sector was R.O. 76.4 million, or only 3.8 % of the total. Given the fact that almost half of the labor force of Omani nationality is engaged in agriculture, and that more than half of the total population resides in rural areas, it will be necessary in the

Table 5.1.1 Sectoral Distribution of Government Investment
(1978-1985)

Sectors	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Commodity Production Sectors											
Crude Oil	18.1	29.5	25.4	19.7	22.2	16.4	14.0	13.7	25.0	22.6	21.0
Natural Gas	2.4	1.0	1.6	1.9	0.2	1.0	1.5	2.2	2.7	2.3	6.2
Other Minerals	0.5	0.2	3.2	5.2	5.5	2.2	0.6	0.3	0.3	0.6	0.2
Agriculture	1.6	1.7	1.4	1.3	1.2	0.9	1.3	1.3	1.1	0.9	1.3
Fisheries	0.4	0.6	0.6	0.3	0.2	0.2	0.3	0.5	0.9	0.8	0.5
Industry	0.0	0.1	2.2	3.0	5.3	2.0	0.5	0.8	1.2	1.5	1.7
Subtotal	22.9	33.1	34.4	36.5	34.7	22.7	18.1	18.9	31.1	28.6	38.9
Service Production Sectors											
Housing	3.0	3.6	1.2	1.1	4.2	4.8	3.6	3.6	2.9	4.1	3.0
Commerce & Tourism	0.3	0.0	0.1	1.9	1.8	4.8	5.5	6.6	2.6	1.8	3.5
Electricity	6.8	5.7	6.4	5.0	7.3	6.5	5.2	2.5	5.6	6.4	6.2
Water	2.5	3.4	1.8	3.4	3.3	2.6	2.4	4.9	1.8	1.4	1.1
Post & Telecommunication	2.8	1.6	0.8	0.5	0.9	2.6	6.3	4.4	4.5	6.3	6.1
Financial Institutions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	15.4	14.3	10.3	11.9	17.6	21.4	23.8	22.0	17.4	20.8	19.9
Infrastructure											
Irrigation & Water Resources	0.4	0.6	0.6	1.3	1.3	1.2	1.3	2.3	1.2	0.5	1.3
Roads	9.7	22.9	15.0	17.1	9.1	8.1	7.2	11.5	9.3	7.7	5.7
Ports	4.4	3.8	3.0	0.9	1.3	0.8	0.2	0.0	0.1	0.0	0.0
Airports	1.4	2.3	1.7	0.6	0.3	0.3	0.5	1.2	0.7	0.3	0.1
Municipal Services	1.5	3.3	5.6	4.9	3.5	2.8	3.4	5.5	3.0	4.8	6.0
Education	3.5	1.9	1.8	2.4	7.4	5.5	6.4	6.8	7.2	5.0	4.7
Vocational Training	0.4	1.7	1.0	0.7	1.2	1.4	1.1	0.3	0.0	0.0	0.1
Health	2.0	1.5	1.3	1.5	1.2	2.2	3.4	3.7	6.6	8.2	3.6
Information, Culture, & Religion	2.1	1.0	1.9	0.5	2.0	2.5	3.4	2.0	1.4	2.2	2.3
Social Service Centers	0.3	0.6	0.6	0.5	0.4	0.6	0.5	0.3	0.2	0.2	0.2
Government Administration	36.8	12.8	22.7	20.8	19.9	38.5	31.8	25.5	21.7	22.5	25.1
Subtotal	61.7	52.5	55.3	51.6	47.7	55.9	58.9	59.1	51.4	51.4	48.1
Grand Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Percentage of Main Sectors to Grand Total of Gov. Inv.											
Agriculture	2.3	2.9	2.6	3.0	2.8	2.3	3.4	4.1	3.2	2.1	3.2
Mining	21.0	30.7	30.2	26.8	27.9	19.6	18.0	16.2	27.9	25.5	27.4
Manufacturing	0.0	0.1	2.2	8.0	5.3	2.0	0.5	0.8	1.2	1.5	1.7
Total	23.3	33.7	35.0	37.8	36.0	23.9	19.9	21.1	32.3	29.1	32.3

future to accord increased investment priority to this important sector.

The government, recognizing this necessity, designated both 1988 and the following year 1989 as "Agriculture Years", and sponsored a variety of activities to foster increased interest in agriculture at both the individual and government levels.

It is anticipated that under the 10-year Master Plan, an accelerated effort will be directed at the agricultural sector as a step toward the promotion of rural development, and improvement of farm income, thereby promoting equitable income distribution, easing off the pressures on urbanization by encouraging settlement in rural areas, etc.

(2) Investment Efficiency in the Agricultural Sector

In order to improve overall productivity of the agricultural sector, it is essential to upgrade the efficient application of three elements: land, capital and labor.

The efficient use of land and capital can be addressed through well-planned, wise investment. Improvement of labor productivity can be achieved through continued programs of agricultural extension and training, and a stable supply of farm inputs and machinery. Here, land and capital can be regarded as the "hard" aspect of agricultural development, while the remaining labor aspect can be viewed as the "soft" aspect (in much the same way as the "hard" aspect for an automobile would be the machine itself, its components and fuel, while the "soft" aspect would be the capacity to drive the vehicle effectively).

An indicator of capital efficiency is the Cost Output Ratio (COR) expressed as K/Y (K: capital, Y: output). However, the Incremental Cost Output Ratio (ICOR) is more conventionally applied due to the difficulty in evaluating K. The ICOR is expressed as $dK/dY = I/dY$ (I: investment). For a typical country, the ICOR for the national economy is generally 3 - 5, although quite a degree of variation may occur depending on the level of development as well as the conditions existing at the initial stage of development. Some example figures from the 1970's are 5.8 for India and

6.8 for Sri Lanka in South Asia, and 3.0 for Korea in East Asia. Japan exhibited a high value of 5.4 for the 10-year period from 1965-1975. It is generally assumed that the ICOR is relatively high at the initial stage of a country's development, steadily dropping as industrialization progresses. The reason for this is that emphasis in the early stages of development is directed at infrastructure at the expense of production sectors. Accordingly, investment has little direct effect on improving production. Again in the case of Japan, COR (exhibiting the same long-term trend as ICOR) for investment efficiency in social infrastructure was 6 - 8 during the 1920's and 30's. For the likewise poorly productive agricultural sector, COR at the initial stage of modern economic development in Japan was more than 5.

The JICA team estimates the ICOR 3-year moving average in Oman for the period 1979-1985 to be 5.0-2.6 for the economy as a whole, and specifically 15.8-1.5 for the mining sector, 2.7-0.9 for the manufacturing sector, and 7.8-2.5 for the agricultural sector. Although unavailability of complete data places a limit on the reliability of calculations, ICORs for all sectors appear to exhibit high values at the start of the 1980's, with subsequent drops thereafter. This indicates an increase in investment efficiency with the passage of time.

However, in the case of the agricultural sector, it is possible that ICOR in the estimation period is the result of less investment in the sector and the biased investment in relatively profitable areas of the sector. Consequently, the comparatively low ICOR for the agricultural sector is regarded as a reference only.

Also, investment in the physical infrastructure of the agricultural sector commenced only recently, and as future investment in the sector increases and is directed at less efficient sub-sectors as well, the depressed ICOR value can be expected to rise.

(3) Investment Efficiency in the 10-year Master Plan

In formulating the 10-year Master Plan, it will be necessary to propose the scale of development investment to be allocated by the

government. To achieve this, the ICOR for the agricultural sector is assumed and the GDP increment is forecasted. On this basis, the necessary total investment is determined.

In the case of a conventional development model based on a short time period such as 5 years, the ICOR is assumed to be sufficiently constant so that a single value can be applied. However, for a longer term (10-year period), it is unrealistic to assume a constant ICOR. Accordingly, the subject time period herein is divided into two 5-year segments, and the assumption is made that investment efficiency will improve sufficiently during the initial 5-year period to yield a 20 % drop in the ICOR value for the second 5-year period.

Although an ICOR value of 5 conventionally would be applied for the initial 5-year period, the following conditions must be considered in the case of the subject sector:

- (a) With the exception of only very limited areas, agriculture in Oman is at a very underdeveloped level.
- (b) Development of physical infrastructures, like recharge dams, which contribute indirectly to agricultural production, as well as modern irrigation facilities directly affecting production, is lacking. The former needs a great amount of investment in spite of its later impact to production increase, namely GDP increase.
- (c) Overall, agricultural development will depend greatly on improved farming skills and active participation on the part of farmers themselves. Such upgrading of skills and changing of attitudes cannot be achieved overnight, and consequently short-term improvement of farm labor productivity cannot be expected. Intensive efforts still have to be directed at the training of extension workers and increasing the range of extension activities, as well as establishing a stable supply of farm input necessary for improved agriculture.

On the basis of the above, a value of 8 which represents the ICOR

commonly seen in the case of physical infrastructures in the initial stage of development is to be adopted as the ICOR for the agricultural sector during the first 5-year period.

GDP in the agricultural sector for 1988-2000 is estimated in Table 5.1.2. GDP figures are calculated on the basis of yearly cultivated areas for each crop, and present and planned production costs and income per cropped areas. Estimated figures show GDP growth of 6.2 %/year for 1988-1995 and 5.9 % for 1995-2000.

The investment amount obtained by multiplying the GDP increment by the ICOR is the total for both public and private investment. On the basis of past trends, it is assumed that public investment will account for 70 % of the total for the duration of the first 5-year period. For the second 5-year period, however, it is anticipated that some development in the private sector will increase its share of the total to some degree. Nevertheless, this increment will be small as the incentive for investment in private agriculture is not predicted to increase due to inadequate physical infrastructures. Consequently, the share of public investment during the second 5-year period is forecasted at 65 %.

Necessary public investment during the two five-year periods based on ICOR and GDP increments for 1990-1995 and 1995-2000 are calculated in Table 5.1.3. For comparative purposes, investment amounts applying an ICOR of 4, 6 and 10 were also computed.

It can be seen that R.O. 350 million is the appropriate value for necessary government investment to achieve implementation of the 10-year plan where ICOR is 8. (A note of caution regarding the above: calculations are, out of necessity, based on certain hypothetical conditions, the fluctuation of any of these will subsequently raise or lower to some degree the suspect figures.)

In addition to cost effectiveness, the following criteria must also be considered in establishing the amount of agricultural investment:

- (a) Agricultural investment is by nature investment in the rural

Table 5.1.2 GDP Growth of Agricultural Sector

(1,000 R.O.)

Crop	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Date Palm	8,162.6	8,537.2	8,928.9	9,338.7	9,767.2	10,215.4	10,684.2	11,174.5	11,687.3	12,223.6	12,784.5	13,371.2	13,984.8
Grape	432.1	531.5	653.8	804.2	989.2	1,219.8	1,496.8	1,841.1	2,266.2	2,737.7	3,243.5	3,781.7	4,345.6
Banana	3,201.2	3,338.1	3,480.8	3,629.6	3,784.8	3,946.0	4,115.3	4,281.3	4,458.9	4,639.1	4,814.1	5,002.1	5,197.5
Coconut	771.8	876.5	995.4	1,130.4	1,283.7	1,457.8	1,655.5	1,880.0	2,145.0	2,413.9	2,684.3	2,957.2	3,232.7
Papaya	534.2	516.8	500.0	483.7	467.9	452.7	437.9	423.7	444.4	466.2	489.0	512.9	538.0
Alfalfa	6,247.6	6,509.1	6,781.5	7,065.4	7,361.1	7,669.1	7,990.1	8,324.5	8,785.1	9,271.1	9,784.1	10,325.4	10,896.6
Rhodes Grass	11,283.8	11,735.5	12,205.3	12,693.9	13,202.1	13,739.6	14,280.3	14,852.0	15,446.3	16,043.1	17,364.7	18,293.4	19,271.8
Wheat	102.1	107.3	112.7	118.4	124.4	130.7	137.4	144.3	153.1	162.4	172.3	182.7	193.8
Sorghum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cowpea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tomato	3,560.2	3,768.9	3,864.3	3,976.6	4,078.6	4,192.0	4,307.2	4,425.7	4,521.3	4,619.0	4,718.7	4,820.7	4,924.8
Sweet Melon	8,711.8	7,891.6	7,492.6	7,916.9	8,365.0	8,838.3	9,338.5	9,866.9	10,442.8	11,052.2	11,697.2	12,379.9	13,102.3
Potato	302.3	367.0	445.6	541.0	656.8	797.4	968.1	1,175.4	1,428.3	1,724.1	2,076.9	2,484.9	2,949.4
Carrot	1,143.3	1,167.6	1,192.4	1,217.7	1,243.5	1,269.9	1,296.9	1,324.4	1,377.8	1,433.4	1,491.1	1,551.2	1,613.8
Garlic	585.1	605.2	628.2	650.9	674.5	698.9	724.2	750.4	772.8	795.9	819.7	844.2	869.4
Cabbage	1,024.4	1,066.5	1,110.3	1,155.9	1,203.4	1,252.9	1,304.3	1,357.9	1,414.6	1,473.7	1,535.2	1,599.3	1,666.1
Okra	165.4	166.1	166.7	167.3	168.0	168.6	169.3	169.9	178.5	187.4	196.8	206.7	217.1
Onion	279.0	288.9	299.1	309.7	320.7	332.1	343.9	356.1	378.9	403.2	429.1	456.6	485.9
Cucumber	1,955.5	2,004.7	2,055.1	2,106.8	2,159.8	2,214.1	2,269.8	2,326.8	2,417.0	2,518.6	2,607.6	2,708.6	2,813.4
Eggplant	431.6	446.3	461.5	477.2	493.5	510.4	527.8	545.8	569.5	594.3	620.2	647.2	675.4
Radish	1,114.2	1,171.4	1,231.6	1,294.9	1,361.4	1,431.3	1,504.9	1,582.2	1,667.2	1,756.7	1,851.1	1,950.5	2,055.3
Squash	402.5	418.0	434.1	450.8	468.2	486.2	505.0	524.4	548.0	572.7	598.5	625.5	653.6
Cauliflower	140.0	139.8	139.7	139.5	139.4	139.2	139.1	138.9	144.7	150.8	157.1	163.6	170.5
Lime, Lemon	4,061.6	3,982.4	3,904.8	3,828.7	3,754.1	3,680.0	3,608.2	3,538.9	3,628.2	3,721.7	3,816.7	3,914.0	4,013.9
Mango	1,713.7	1,773.0	1,834.4	1,897.9	1,963.6	2,031.6	2,101.6	2,174.6	2,245.0	2,317.7	2,392.8	2,470.2	2,550.2
Chilli Pepper	1,691.8	1,770.3	1,852.4	1,938.3	2,028.2	2,122.3	2,220.7	2,323.8	2,444.8	2,572.1	2,706.0	2,846.9	2,995.2
Tobacco	4,986.5	5,096.6	5,209.1	5,324.1	5,441.7	5,561.8	5,684.6	5,810.1	5,938.4	6,069.5	6,203.5	6,340.4	6,480.4
Milk	4,609.3	4,653.5	4,698.1	4,743.1	4,788.5	4,834.4	4,880.7	4,927.5	5,064.5	5,205.2	5,348.9	5,498.7	5,651.5
Mutton	5,132.4	5,643.5	6,285.3	6,823.2	7,502.5	8,249.5	9,070.9	9,974.0	11,375.6	12,974.1	14,797.3	16,876.7	19,248.3
Beef	3,176.8	3,448.8	3,751.3	4,080.4	4,438.2	4,827.5	5,250.9	5,711.4	6,201.0	6,721.0	7,271.0	7,848.7	8,448.4
Chicken	548.3	623.7	704.6	793.1	889.1	994.0	1,104.1	1,224.4	1,354.1	1,494.0	1,644.0	1,804.0	1,974.0
Egg	575.3	734.6	938.1	1,198.0	1,529.9	1,953.7	2,484.9	3,186.0	3,446.6	3,728.4	4,033.3	4,363.2	4,720.0
Other Vegetables	117.4	123.5	130.0	136.8	143.9	151.4	159.4	167.7	176.5	185.7	195.4	205.6	216.4
Other Tubers	237.6	263.8	292.9	325.2	361.0	400.9	445.1	494.2	547.6	605.4	670.1	741.6	820.9
Other Citrus	2,101.0	2,156.9	2,214.3	2,273.2	2,333.7	2,395.7	2,459.5	2,524.9	2,595.3	2,667.7	2,742.1	2,818.5	2,897.1
Other Fruits	223.7	276.4	341.5	422.0	521.4	644.2	796.0	983.5	1,140.6	1,322.8	1,534.1	1,779.2	2,063.4
Total	77,820.1	81,594.0	85,789.7	90,513.5	95,914.1	102,201.2	109,674.1	118,763.8	125,434.7	132,626.6	140,391.5	148,787.7	157,880.4
Growth Rate		4.8	5.1	5.5	6.0	6.6	7.3	8.3	9.6	10.7	11.9	13.2	14.6

Table 5.1.3 Required Government Investment in Agricultural Sector
Calculated through ICOR

Item	1988	1990	1990- 1995	1995- 2000	Total Investment
GDP (R.O. 1.000)	77,820.1	85,789.7	118,763.8	157,800.4	
GDP Increase			32,974.2	39,116.6	
Case 1 Assumed ICOR			4.0	3.2	
Necessary Investment			131,896.8	125,173.2	
Gov. Contribution to Total Investment (%)			70.0	65.0	
Gov. Investment			92,327.8	81,362.6	173,690.2
Private Investment			39,569.0	43,810.6	83,379.6
Case 2 Assumed ICOR			6.0	4.8	
Necessary Investment			197,844.9	187,759.8	
Gov. Contribution to Total Investment			70.0	65.0	
Gov. Investment			138,491.4	122,843.8	260,535.3
Private Investment			59,353.5	65,715.9	125,069.4
Case 3 Assumed ICOR			8.0	6.4	
Necessary Investment			263,793.2	258,346.3	
Gov. Contribution to Total Investment			70.0	65.0	
Gov. Investment			184,655.3	162,725.1	347,380.4
Private Investment			79,138.0	87,621.2	166,759.2
Case 4 Assumed ICOR			10.0	8.0	
Necessary Investment			329,741.5	312,932.9	
Gov. Contribution to Total Investment			70.0	65.0	
Gov. Investment			230,819.1	203,406.4	434,225.5
Private Investment			98,922.5	109,526.5	208,449.0

society, and serves to rectify disparities in income distribution and social infrastructure development between urban and rural areas.

- (b) The linkage effect or intangible benefit, beyond the agricultural sector, can be anticipated to be that almost half of the labor force of Omani nationality will be engaged in agriculture.
- (c) Investment in large-scale agricultural production infrastructures such as recharge dams, etc. due to their multipurpose nature can be anticipated to have a strong impact on stimulating economic activity outside the agricultural sector as well.

In addition to determining the ICOR as per above, it will also be necessary to establish the criterion for calculating the appropriate share that the agricultural sector should receive from total national investment. From the viewpoint of optimum allocation of resources, it is recommended that at least 10 % of total government investment be directed at the agricultural sector (in 1988, the outlay for agriculture by the government, including production and infrastructure, was only 3.0 % of the total investment). Although investment in the agricultural sector is less cost effective due to its relatively low productivity, from the long-term viewpoint it is warranted in order to diversify the pillars supporting the Omani economy which is currently overly dependent on its petroleum industry, as well as to improve the welfare of the farmers who make up almost half of the labor force of Omani nationality.

In this regard, the JICA team recommends that the minimum investment be R.O. 350 million for the coming 10-year Master Plan.

At a national policy making level, a strong awareness of the importance of agriculture has emerged, and increased investment in the sector can be expected.

5.2 Required Budget for 10-Year Agricultural Development Plan

5.2.1 Definition

In line with the development objectives set out in chapters 2 - 4, the JICA team selected priority projects to achieve the targeted agricultural development over the period 1991 to 2000. In selecting such projects, the team based its criteria not only on development potential elicited through its own field survey, but also on the findings of various project studies implemented to date by the Omani government as well as information obtained in discussions with concerned government officials of the Sultanate including H.E. the Minister of Agriculture and Fisheries.

Regional development plans formulated by the government were reviewed, and compatibility with these has been pursued to the extent possible in the preparation of this national-level 10-year Master Plan.

Priority projects have been compiled into a long list (Tables 5.2.1, 5.2.3 - 5.2.10). The budget for implementation of these projects over the subject 10-year period is to be allocated from the agriculture-related project budgets of MAF and PAMAP.

This budget total includes investment directly affecting the agricultural GDP referred to hereinafter as "agricultural investment", as well as indirect investment in such related sectors as service (PAMAP projects) and industry (Agricultural Produce Processing Project). However, additional recurrent budgets to be incurred in relation to the projects have been tabulated separately. Also, in cases where government investment is joined by private sector investment or financing by OBAF, they are grouped by funding source.

The budget total represents the rational project implementation possible which conforms to the agricultural development targets and strategy under the Master Plan. Details of an alternative development option, taking into consideration the macro-economic aspects presented in section 5.1, and an option representing the minimum investment necessary to achieve a foundation for stable agricultural growth over the long-term

are set out in section 5.3.

A sectoral description of project components is contained in volume 5, chapter 3.

5.2.2 Required Budget for Agricultural Development

5.2.2.1 Overall Budget

The required budget for agricultural development under the Full Master Plan is R.O. 589 million (Table 5.2.1). Of this, outlay from the budget of MAF is R.O. 557 million, and that from PAMAP is R.O. 31 million. Agricultural investment is R.O. 536 million. ICOR for the target period 1991 - 2000 is 11.

Yearly budget requirements for the 10-year period are set out in Table 5.2.2. The total budget for the first 5-year period is R.O. 324 million, while agricultural investment for the same is R.O. 286 million. The total budget for the second 5-year period is R.O. 265 million, while agricultural investment for the same is R.O. 250 million. ICOR for the first 5-year period is 12.4, and that for the second 5-year period is 9.8.

5.2.2.2 Sectoral Budget

(1) Sectoral Allocation and Yearly Allocation

Tables 5.2.3 - 5.2.10 indicate sectoral allocation and yearly allocation for the 10-year period.

The foregoing is characterized by a relatively heavy outlay for the irrigation and dam sector, to include construction of modern irrigation facilities and recharge dams, due to the general backward state of agricultural production infrastructures. This outlay is 61 % of the total.

From the standpoint of conservation of precious water resources, the impact on the general public of irrigation facility and recharge dam construction ranks in proportion to other public welfare infrastructures such as schools, hospitals, roads, etc. As these water-use works affect the country as a whole and not just the agricultural sector, they have been accorded high priority.

The Master Plan places emphasis on the vertical development of agricultural productivity. In order to achieve this, special weight, in terms of budget outlay, is given to strengthening and expanding extension and research activities at the core of the transfer of new technology to farmers.

Establishment of extension facilities is concentrated in the first 5-year period to provide the essential framework for future extension activities. Research facilities are ranked according to priority and are to be implemented on a phased basis to ensure continued activity throughout the 10-year period. Total budget for extension, research and general farm-related activities is 11 % of the total (Tables 5.2.4, 5.2.5 and 5.2.6)

Livestock has much potential for development. Small farmers in Oman are generally engaged in a combination of both crop cultivation and animal husbandry. In order to promote permanent settlement in rural areas and stem influx into urban centers, it is important to upgrade the productivity of this traditional form of farm management.

Towards this objective, subsidy for poultry farmers is to be implemented during the first 5-year period. However, to encourage independence of farmers' efforts, no subsidies would be provided to farmers during the second 5-year period.

Given the urgency of measures to combat serious livestock infectious diseases such as FMD, rinderpest, PPR and CCPP, the Animal Health and Disease Control Project is to be implemented during the first 5-year period. Livestock related research is to be implemented throughout the 10-year period. The livestock budget is 13 % of the total (Table 5.2.7).

In the distribution sector, wholesale markets and collecting and shipping stations are to be implemented in a phased manner over the entire 10-year period (Table 5.2.8). Projects related to distribution of crop and livestock products total R.O. 31 million.

The agricultural produce processing projects aim at nurturing private sector participation through government subsidy. Construction of a coconut plant in the Southern Region and other projects under the program will commence as the results of the feasibility studies in this regard become available. Total cost for the agricultural produce processing projects is R.O. 24 million, of which outlay by MAF would be R.O. 11 million (Table 5.2.9, 5.2.27).

Inter-sectoral projects include the Integrated Agricultural Development Project in Nejd, the Project for Improvement and Maintenance of MAF Facilities and on-going projects. The Nejd project is considered particularly promising, and will entail an integrated implementation of research, extension and irrigation facilities with a view to increased agricultural investment efficiency. The budget for these inter-sectoral projects is R.O. 44 million (Table 5.2.10).

(2) Regional Budget Allocation

Design for regional allocation on a sectoral and project basis is indicated in Tables 5.2.11 - 5.2.19. Regional allocation was determined on the basis of the following criteria:

- (a) Projects with a fixed project area have been included in the allocation for the region to which that area belongs.
- (b) For projects for which total project load is known but specific regional outlay will not be clear until the implementation stage, proportional outlay per region has been estimated in advance on the basis of the most probable criteria, such as proportion of cropped area to occur in a particular region, etc.

(c) In the case of strictly national projects and programs, regional outlay was estimated on the basis of arbitrary criteria such as number of head of livestock affected in a particular region, etc.

Details of regional budget outlay are contained in chapter 6.

(3) Source Allocation of Funding

The Master Plan includes projects funded jointly by the government, and either OBAF or the private sector. Tables 5.2.20 - 5.2.28 indicate these projects according to source of funding. Total necessary funding from all sources under the Master Plan is R.O. 659 million (Table 5.2.20). Capital participation from the private sector is anticipated for the agricultural produce processing projects (Table 5.2.27) and the Livestock Marketing Improvement Project (Table 5.2.25). Expected private sector investment in the projects included under the Master Plan totals R.O. 30 million.

Funding participation by OBAF under the Master Plan is anticipated at R.O. 41 million. This funding will mainly be used to supplement the government subsidy program. For sectors, the bank is expected to provide the bulk of financing in relation to projects to establish modern irrigation facilities (Table 5.2.20).

5.3 Alternatives for the 10-Year Agricultural Development Plan

5.3.1 Criteria for Priority Ranking

In section 5.2, a rational project load was formulated on the basis of development goals and strategies as set out in chapter 3 and 4. The long list of projects so derived is considered the upper ceiling for the 10-year agricultural development budget.

In this section, two alternatives for the subject agricultural plan are developed. Alternative 1 proposes an agricultural investment frame of R.O. 350 million on the basis of strictly macro-economic considerations as

laid out in section 5.1 (Development Investment in Agriculture), in other words, only the most rational investments in terms of a superior ICOR.

Alternative 2 proposes the recommended floor for more appropriate investment in Omani agriculture taking into consideration a broader range of factors aiming at a firm foundation for long-term, stable agricultural growth. This alternative encompasses those projects of highest priority and envisages an agricultural investment frame of R.O. 427 million.

In formulating alternatives 1 and 2, criteria for assigning priority were as follows:

- (1) Agricultural production infrastructure is seriously lacking in Oman. Accordingly, high priority is accorded to the construction and/or strengthening of such infrastructures as irrigation facilities, recharge dams, extension centers and branches, livestock sheds for small livestock holders, etc.
- (2) Vertical upgrading of agricultural productivity is essential to offset a population increase of 3.5 % per annum, as well as to move towards food self-sufficiency. Accordingly, focus is given to projects/programs which increase land and labor productivity.
- (3) It is important to promote permanent settlement in rural areas. And in this regard, projects/programs which increase farm income and otherwise serve to stimulate the rural economy are given high priority.
- (4) Projects which promote private capital participation are to be given maximum encouragement wherever feasible.
- (5) Training programs for Omani human resources development are to be given priority.
- (6) Any other programs warranting urgent implementation are to be given close attention.

5.3.2 Description of Development Alternatives

5.3.2.1 Alternative 1

(1) Outline

Alternative 1 is based on assumptions contained in section 5.1. Total outlay under the alternative is R.O. 404 million with R.O. 350 million in agricultural investment (Table 5.3.1). Total outlay for the first 5-year period and for the second 5-year period is envisaged at R.O. 245 million and R.O. 159 million, respectively. The ICOR for the total 10-year period is 7.

This alternative cuts the Full Master Plan outlay in section 5.2 back from R.O. 589 million to R.O. 404 million. Even if the total agenda for agriculture and livestock sector projects were to be eliminated, the budget outlay reduction would still be less than R.O. 150 million. Therefore, it can be seen that large cuts must be made under the alternative in irrigation and dam facility construction. Proportionate shares for investment are 46 % for irrigation and dam facilities, 16 % for the agricultural extension, research and production sector, and 18 % for the livestock sector.

(2) Sectoral Description

(a) Irrigation and Dam Sector

This sector experiences the largest cuts under alternative 1. On the basis of the above described selection criteria (1) and (3), priority is given under this item to modern irrigation facilities and recharge dams, at the expense of outlay reduction for other irrigation works including the traditional falaj method and well irrigation.

Comparison of the Full Master Plan and alternative 1 is shown in Table 5.3.4. Under the former, the target area for modern irrigation

works is 30,000 ha, while under the latter, it is 25,000 ha. The Pilot Project for Centrally Controlled Irrigation shows a target area under the former of 6,300 ha and under the latter of 2,500 ha. Under alternative 1, project load for maintenance and rehabilitation of traditional falaj irrigation works is reduced by 87 % over 400 locations in the Full Master Plan. Project load for well rehabilitation is likewise, one tenth.

(b) Agriculture Sector

Reflecting upon priority selection criteria (2), (5) and (6), this sector has extremely high priority. To realize vertical expansion of agricultural production, linkage of the agricultural research and extension activities is considered particularly important with a view to prompt transfer of new technology to the farmer.

The Rumais Agricultural Research Center was established in 1971. Unfortunately, lack of adequate facilities has prevented full realization of research goals. This in turn has hampered extension activities. There are a number of urgent research issues which require attention and which are directly related to an increase in agricultural production: these include identification of crop water requirements, development of appropriate fertilizing and pest control methods, dispersion of the cropping season, selection of new varieties, etc. Demand at the farmer level for a resolution of these issues remains high. Thus facilities, equipment and staff at the Rumais Agricultural Research Center will be strengthened to effectively carry out the above research.

More effective research will in turn result in more effective extension activities. Furthermore, the present research system is involved directly in some extension activities such as soil surveys. Accordingly, R.O. 18 million is targeted for research facilities and equipment.

Extension and general farm related activities are one of the

highest priority sectors under the agricultural development plan. Establishment of a basic framework for the conduct of intensive extension activities is thus a major target.

Also under this alternative, a national aerial pest control project is to be carried out subsidized 100% by the government during the first 5-year period. Under the second 5-year period, however, farmers would be expected to bear the cost for the pest control agro-chemicals.

Under alternative 1, instead of providing agricultural technology information units at each of the 44 extension centers, a phased deployment limited to 30 key towns would be implemented.

(c) Livestock sector

Projects under this item have been chosen on the basis of priority selection criteria (1), (2) and (3). In view of the importance of animal husbandry in the Southern Region, the Rangeland Revegetation Project in the Southern Region and the Livestock Marketing Improvement Project have been accorded priority. The vaccination program under the Livestock Health and Disease Control Project requires urgent implication. However, under alternative 1, the target date for 100 % vaccination of livestock against infectious diseases is pushed back from 1995 under the Full Master Plan to 1998. The Small Farm Development Support Project would subsidize 5 % of all holders, down from 7 % under the Full Master Plan.

The Livestock Input Company Project would supply concentrated feeds and breeder birds important for increasing the productivity of animal husbandry. This would be implemented as early as possible to encourage participation from the private sector.

(d) Distribution sector

Streamlining of the distribution system will provide incentive to farmers to expand production. All the projects under this sector

are considered extremely important, and no change in that under the Full Master Plan is made.

(e) Agricultural Produce Processing Sector

The most highly feasible projects are to be implemented under this section. As participation from the private sector is readily anticipated, no change has been made in the agenda called for under the Full Master Plan.

(f) Inter-sectoral Projects

In line with priority selection criteria (3), priority is accorded to the Integrated Agricultural Development Project in Nejd. The Master Plan for development of Date Palm Cultivation would be limited to 1991. Due to the low urgency of the Artificial Rainfall Project, it is to be deleted from the agenda under alternative 1.

(3) Regional Budget Allocation

Regional budget allocations are formulated on the basis of (2) in section 5.2.2.2. Tables 5.3.12 - 5.3.20 show a comprehensive tabulation of regional, as well as sectoral budget outlays for each region. The budget for the Batinah Region is the largest at 35 % of the total. Next is the Southern Region, followed by Dakhliya, Sharqiya and Dhahira.

5.3.2.2 Alternative 2

(1) Description

Alternative 2 expands upon alternative 1 by adding funding to those projects where investment is considered to be critically lacking. The target of alternative 2 is to provide the minimum investment desirable in terms of the overall current condition of agriculture in Oman and to establish a sound foundation for the development of Oman's agriculture

over the long-term (Table 5.3.21). The total budget outlay under this alternative is R.O. 480 million, with R.O. 448 million to be provided by MAF and R.O. 31 million by PAMAP. Of that portion to be provided by MAF, R.O. 427 million is agricultural investment. ICOR is 8.7. Outlay by MAF for 1991 - 1995 and for 1996 -2000 is R.O. 261 million and R.O. 187 million, respectively. Share in total budget outlay is 54 % for irrigation and dam facility construction, 13 % for agriculture, and 16 % for animal husbandry.

(2) Sectoral Description

In order to increase agriculture investment efficiency in the future, establishment of adequate agricultural production infrastructures is particularly important at present. Prevention of infectious diseases is likewise an urgent issue to prevent large losses in livestock. In this light, investment for the following two sub-sectors has been increased under alternative 2.

(a) Irrigation and Dam Facilities

The target area to be subsidized under the New Irrigation System Project aimed at effective use of limited water resources is 30,000 ha. The target area in the Pilot Project for Centrally Controlled Irrigation is 65 % of that under the Full Master Plan. Project load for repair and maintenance of the traditional irrigation systems, aflaj and wells, is over half of that under the Full Master Plan (Table 5.3.24).

(b) Livestock

Due to the high urgency of the vaccination program under the Livestock Health and Disease Control Project, the target year for a 100 % vaccination rate against infectious diseases is to remain the same as that under the Full Master Plan -- 1995.

(3) Regional Budget Allocation

In accordance with (2) of section 5.2.2.2, total regional allocation and sectoral allocation for each region are shown in Tables 5.3.21 - 5.3.40. Details of regional allocation are given in volume 3, section 6.3.

5.4 Recommended Alternative

Required agricultural investment from a purely macro-economic standpoint was examined in section 5.1. In sections 5.2 and 5.3, a comparative study of all 3 options, i.e. the Full Master Plan and alternatives 1 and 2, is performed and results are tabulated in Table 5.4.1. On the basis of the foregoing, the following is concluded:

- (1) From a purely macro-economic standpoint, an appropriate ICOR for the envisaged agricultural development plan is 8 in the first 5-year period. It will then decrease by 20 % in the subsequent 5-year period. To achieve this, agricultural investment of R.O. 350 million is necessary over the subject 10-year period.
- (2) In line with all targets and strategies under the agricultural development plan, selected projects would require a maximum outlay of R.O. 589 million.
- (3) On the basis of (1) above, alternative 1 calling for investment of R.O. 350 million was formulated. However, investment in agricultural production infrastructures remains insufficient.
- (4) In order to address the insufficiencies in (3), alternative 2 was formulated. Investment under this alternative is expanded in the areas of agricultural production infrastructure and projects of extreme urgency. Agricultural investment of R.O. 427 million is targeted to achieve balanced development of both infrastructure and human resources in the agricultural sector.

In determining the appropriate development approach, attention must remain on the fact that agriculture in Oman has a large potential for

improvement. However, lack of investment in this sector to date has resulted in farming in the country, with few exceptions, being backwards level. In order to strengthen investment efficiency in this sector in the future, (1)upgrading of farm technology coupled with (2)establishment of modern agricultural production infrastructure, will be necessary. Consequently, strengthening and expanding research and extension activities to address the former, and construction of modern irrigation facilities, recharge dams, extension and research facilities, and animal sheds for small livestock holders to address the latter, must be urgently pursued over the 10-year period.

In consideration of the envisaged targets, the strategies, the funding environment and the effectiveness of investment in agriculture over the long term, the JICA team has recommended the implementation of alternative 2.

Table 5.2.1 Budget Total - 10-Year Plan

SECTOR	PROJECT NUMBER	NAME OF PROJECT/PROGRAM	TOTAL BUDGET (1000RO)
Irrigation and Dam	NW-1	Improvement of Irrigation System and Centrally-Controlled Water-Distribution System	60,990
	NW-2	Subsidy for New Irrigation System Project	37,500
	NW-3	Legal Framework for Agricultural Water Use	250
	NW-4	Recharge Dams	86,633
	NW-5	Sub-surface (Underground) Dams	5,000
	NW-6	Aflaj	113,420
	NW-7	Wells	30,240
	NW-8	Springs	5,914
	NW-9	Erosion Control and Protection of Agricultural Land against Floods	11,510
	NW-10	Survey and Monitoring	5,940
Agricultural Research			18,200
	NAR-1	Support for Agricultural Research Stations	5,300
	NAR-2	Establishment of New Research Units and Laboratories	5,600
	NAR-3	Development and Establishment of Experimental Farms and Nurseries	2,000
	NAR-4	Forestry-Improvement Program	2,000
	NAR-5	Establishment of Locust Survey and Central Unit	2,000
Agricultural Extension	NAR-6	Soil Surveys	1,300
			24,000
	NAE-1	Improvement and Development of Extension Centers and Facilities	4,470
	NAE-2	Establishment of Development Support Communication Center(DSCC)	1,190
Agricultural Production	NAE-3	Training of Researchers, Extension Staff and Statistics Staff	2,520
	NAE-4	Intensive Extension Guidance Program	15,820
			25,060
	NAA-1	Collection and Organization of Agricultural Statistics	2,560
Livestock	NAA-2	Agricultural Exhibitions and Festivals	1,400
	NAA-3	National Project for Plant Protection and Aerial Spraying	10,000
	NAA-4	Agricultural Technology Transfer to Farmers Project	10,000
	NAQ-1	Development and Improvement of Plant Quarantine	1,100
			79,320
Distribution	NLL-1	Rangeland Revegetation Project in Southern Region	3,552
	NLL-2	Animal Health and Disease Control Project	31,423
	NLE-1	Livestock Extension Development Project	632
	NLR-1	Livestock Research Development Project	6,550
	NLM-1	Livestock Marketing Improvement Project	7,604
	NLL-3	Livestock Input Company Project	1,359
	NLL-4	Small Farm Development Support Project	25,899
	NLL-5	Livestock Specialized Services Program	2,301
			30,067
	ND-1	Establishment of Wholesale Market	18,326
Agricultural Produce Processing	ND-2	Supply and Demand Forecast of Agricultural Produce	444
	ND-3	Establishment of Shipping Organization for Farmers	1,220
	ND-4	Fortification of PAHAP	10,077
			10,918
Inter-Sectoral	NP-1	Establishment of Private Company for Agro-Industry and Supply of Agricultural Inputs and Services	5,100
	NP-2	Establishment of Agro-Industrial Complex for Processing of Dates, Limes and Tomatoes	1,410
	NP-3	Establishment of Pickling and Vinegar-Processing Plant	1,782
	NP-4	Establishment of Coconut-Processing Plant	2,626
Total			43,644
	NI-1	Integrated Agricultural Development Project in Nejd	16,553
	NI-2	Improvement and Maintenance of MAF Facilities	20,991
	NI-3	Artificial Rainfall Project	2,500
	OI-1	Citizen's Compensation against Natural Crisis	3,000
	OI-2	Master Plan for Development of Date Palm Cultivation	600
			588,606

Table 5.2.3 Annual Budget of Irrigation and Dam Sector - 10-Year Plan

PROJECT NUMBER	NAME OF PROJECT/PROGRAM	PRIO.	TOTAL BUDGET (1988/90)	ANNUAL BUDGET REQUIREMENT										1991 - 1995 - 2000	
				1991	1992	1993	1994	1995	1996	1997	1998	1999	2000		
NH-1	Improvement of Irrigation System and Centrally-Controlled Water-Distribution System	A	68,930	740	1,100	5,810	8,320	9,840	8,940	8,580	8,480	5,480	3,380	26,310	34,680
	Study Phase (P+S.F+S)		2,420	440	690	360	300	240	240	180	60			1,940	480
	Pilot Project		59,510	300	520	5,450	8,520	9,600	8,700	8,300	8,400	5,420	3,380	24,370	34,200
NH-2	Subsidy for New Irrigation System Project for 30,000ha	A	37,580	1,250	2,500	3,750	3,750	3,750	3,750	3,750	5,000	5,000	5,000	15,000	22,500
NH-3	Legal Framework for Agricultural Water Use	A	250	45	45								40	40	80
NH-4	Recharge Dams	A	86,633	10,200	10,300	10,525	11,099	11,075	9,750	8,050	6,550	4,975	4,120	52,198	33,445
NH-4-1	Groundwater-Recharge Scheme Study Phase		6,520	1,000	1,000	900	900	800	800	800	300	300	220	4,600	1,920
	Construction Phase		65,200	8,200	9,300	9,600	9,200	8,700	7,600	6,900	4,500	2,800	2,800	42,400	22,800
NH-4-2	Maintenance and Improvement of Existing and Newly Constructed Dams		9,413	250	250	475	538	525	1,000	1,100	1,200	1,325	1,350	2,438	5,975
NH-4-3	Recharged Water Effective Use Pilot Project (Study)		500	50	50	50	50	50	50	50	50	50	50	250	250
NH-4-4	Identification of New Groundwater-Recharge Schemes		6,000	700	700	700	700	700	500	500	500	500	500	3,500	2,500
NH-5	Sub-Surface (Underground) Dams	A	5,000	75	100	100	180	1,955	1,215	1,240	15	15	15	2,500	2,500
	Reconnaissance Study		75											75	
	Preliminary Study		150	100	50									150	
	Feasibility Study		300	100	150									300	
	Pilot Project (Construction)		4,325				1,900	1,200	1,225				1,900	2,425	
	Observation and Monitoring		150			30	30	15	15	15	15	15	15	75	75
NH-6	Aflaj	A	113,420	9,390	11,390	11,390	11,310	11,310	11,310	11,310	12,310	12,310	12,310	54,870	58,550
NH-6-1	Repair and Maintenance of Aflaj		90,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	45,000	45,000
NH-6-2	Distribution System Improvement Pilot Project in Oasis (Study)		1,500	150	150	150	150	150	150	150	150	150	150	750	750
NH-6-3	Improvement and Maintenance of Major Aflaj														
	Study		1,920	240	240	240	240	160	160	160	160	160	160	1,120	920
	Construction		20,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	6,000	12,000
NH-7	Wells	A	30,240	2,024	3,024	3,024	3,024	3,024	3,024	3,024	3,024	3,024	3,024	15,120	15,120
NH-7-1	Subsidy for Repair of Existing Open Wells		10,240	1,024	1,024	1,024	1,024	1,024	1,024	1,024	1,024	1,024	1,024	5,120	5,120
NH-7-2	Assistants Wells for Aflaj		20,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	10,000	10,000
NH-8	Springs	A	5,914	545	550	553	591	605	590	595	599	637	650	2,844	3,070
NH-8-1	Improvement of Springs		5,250	525	525	525	525	525	525	525	525	525	525	2,625	2,925
NH-8-2	Annual Maintenance of Open Channel for Spring		664	28	25	28	66	80	65	70	73	112	125	219	245
NH-9	Erosion Control and Protection of Agricultural Land against Floods	A	11,510	70	700	1,040	1,030	970	1,550	1,550	1,540	1,500	1,500	3,870	7,640
	Study Phase		410	70	50	50	50	50	50	50	50	40		270	140
	Construction Phase		11,100	710	990	990	980	920	1,500	1,500	1,500	1,500	1,500	3,600	7,500
NH-10	Survey and Monitoring	A	5,940	1,197	1,260	1,283	333	317	317	309	300	308	308	4,390	1,550
NH-10-1	Long-term Plan for Areal Photography and Ortho-photo Mapping		2,200	250	217	217	217	217	217	217	216	216	216	1,118	1,082
NH-10-2	Establishment and Operation of Hydrological Monitoring Network for Recharge Dams		3,740	947	1,043	1,066	116	100	188	92	92	92	92	3,272	468
TOTAL	DEVELOPMENT BUDGET TOTAL		357,397	26,491	31,029	37,600	40,206	42,936	40,446	38,408	36,885	33,289	30,267	176,262	179,135

Table 5.2.4 Annual Budget of Agricultural Research Sector - 10-Year Plan

PROJECT NUMBER	NAME OF PROJECT/PROGRAM	PRIO.	TOTAL BUDGET (1000RO)	ANNUAL BUDGET										1991 -1995	1991 -1995	1991 -2000	1991 -2000
				1991	1992	1993	1994	1995	1996	1997	1998	1999	2000				
NAR-1	SUPPORT FOR AGRICULTURAL RESEARCH STATIONS		5,300	1,035	640	395	325	315	828	493	423	423	423	423	423	2,710	2,598
NAR-1-1	AGRICULTURAL RESEARCH FACILITIES AT RUMAIS	A	1,100	200	100	100	100	100	100	100	100	100	100	100	100	600	580
NAR-1-2	AGRICULTURAL RESEARCH FACILITIES AT JEMMAH	A	950	350	70	70	60	50	50	50	50	50	50	50	50	600	250
NAR-1-3	AGRICULTURAL RESEARCH FACILITIES AT SALALAH	A	1,200	350	130	65	65	65	65	65	65	65	65	65	65	675	325
NAR-1-4	AGRICULTURAL RESEARCH FACILITIES AT SOHAR	A	950	60	300	120	60	60	60	60	60	60	60	60	60	600	320
NAR-1-5	AGRICULTURAL RESEARCH FACILITIES AT SHARQIYA	A	850	75	40	40	40	40	303	78	78	78	78	78	235	615	
NAR-1-6	AGRICULTURAL RESEARCH FACILITIES AT DHAHIRA	A	600						250	140	70	70	70	70	0	600	
NAR-2	ESTABLISHMENT OF NEW RESEARCH UNITS AND LABORATORIES		5,600	875	690	410	530	520	485	570	640	415	415	415	3,075	2,525	
NAR-2-1	AGRICULTURAL MACHINERY RESEARCH UNIT AT RUMAIS	A	800	215	95	65	65	65	65	65	65	65	65	65	475	325	
NAR-2-2	TOXICOLOGY LABORATORY (RUMAIS)	A	300	75	100	30	15	15	13	13	13	13	13	13	235	95	
NAR-2-3	SEED AND TUBER PRODUCTION RESEARCH UNIT (RUMAIS)	A	650	20	20	20	20	10	255	125	100	100	100	100	70	580	
NAR-2-4	CENTRAL SOIL, PLANT AND WATER ANALYSIS LABORATORY (RUMAIS)	A	800	300	75	75	75	75	40	40	40	40	40	40	600	200	
NAR-2-5	LIBRARY AND DOCUMENTATION CENTER (RUMAIS)	A	250	160	30	25	25	2	2	2	2	2	2	2	240	10	
NAR-2-6	PLANT WATER REQUIREMENT DETERMINATION UNIT (SALALAH)	A	100	100											100	0	
NAR-2-7	MEDICAL AND PERFUME PLANT RESEARCH UNIT (SALALAH)	A	75						15	15	15	15	15	15	0	75	
NAR-2-8	DISEASE AND PEST FORECASTING UNIT (RUMAIS)	A	100												100	0	
NAR-2-9	SALT TOLERANT PLANTS AND HALOPHYTES RESEARCH UNITS (RUMAIS)	A	650						100	100	100	100	100	100	200	450	
NAR-2-10	HONEY BEE LABORATORY (RUMAIS)	A	200	50	25	25	20	20	20	20	10	10	10	10	140	60	
NAR-2-11	HONEY BEE RESEARCH UNIT (SALALAH)	A	100	20	15	10	10	10	10	10	5	5	5	5	65	35	
NAR-2-12	HONEY BEE RESEARCH UNIT (JEMMAH)	A	75	15	15	10	5	5	5	5	5	5	5	5	50	25	
NAR-2-13	DATE PALM RESEARCH UNIT (RUMAIS)	A	1,500	200	115	95	195	195	60	260	260	60	60	60	800	700	
NAR-3	DEVELOPMENT AND ESTABLISHMENT OF EXPERIMENTAL FARMS AND NURSERIES		2,000	120	270	295	195	160	288	273	133	138	118	118	1,340	960	
NAR-3-1	DEVELOPMENT OF ARABIC COFFEE EXPERIMENTAL FARM IN SALALAH	A	200				45	48	19	19	9	9	9	9	135	65	
NAR-3-2	DEVELOPMENT OF NURSERIES AT RUMAIS AND BARKA	A	300	120	40	30	20	10	30	20	10	10	10	10	220	80	
NAR-3-3	DEVELOPMENT OF NURSERIES AT SOHAR	A	150				20	20	6	16	16	6	6	6	100	50	
NAR-3-4	DEVELOPMENT OF NURSERIES IN INTERIOR	A	400				30	40	30	20	20	20	20	20	300	100	
NAR-3-5	DEVELOPMENT OF NURSERIES IN SOUTHERN REGION	A	150				20	20	20	16	16	6	6	6	100	50	
NAR-3-6	DEVELOPMENT OF EXPERIMENTAL FARM AT WADI GURIYAT	A	150				25	25	4	4	9	14	4	4	115	35	
NAR-3-7	DEVELOPMENT OF EXPERIMENTAL FARM AT MUSANDAM	A	100				30	25	15	3	3	3	3	3	70	30	
NAR-3-8	DEVELOPMENT OF EXPERIMENTAL FARM AT SHARQIYA	A	300						190	30	30	25	25	25	0	300	
NAR-3-9	DEVELOPMENT OF EXPERIMENTAL FARM AT DHAHIRA	A	250							145	35	35	35	35	0	250	
NAR-4	FORESTRY-IMPROVEMENT PROGRAM		2,000	200	200	200	200	200	200	200	200	200	200	200	1,000	1,000	
NAR-5	ESTABLISHMENT OF LOCUST SURVEY AND CENTRAL UNIT (RUMAIS, ALL REGION)	A	2,000	200	200	200	200	200	200	200	200	200	200	200	1,000	1,000	
NAR-6	SOIL SURVEYS	A	1,300				200	200	200	100	100	100	100	100	300	500	
TOTAL	DEVELOPMENT BUDGET TOTAL		18,200	2,430	2,200	1,700	1,700	1,595	2,101	1,836	1,706	1,476	1,456	1,456	9,625	8,575	

Table 5.2.5 Annual Budget of Agricultural Extension Sector
- 10-Year Plan

PROJECT NUMBER	NAME OF PROJECT/PROGRAM	PRIO.	TOTAL BUDGET (1000000)	ANNUAL BUDGET										1991 -1995	1996 -2000	
				1991	1992	1993	1994	1995	1996	1997	1998	1999	2000			
NAE-1	IMPROVEMENT AND DEVELOPMENT OF EXTENSION CENTERS AND FACILITIES		4,470	904	934	884	774	724	50	50	50	50	50	50	4,250	250
NAE-1-1	ESTABLISHMENT OF EXTENSION CENTERS IN RENDE AREA	A	650	100	150	100	50	50	50	50	50	50	50	50	400	250
NAE-1-2	IMPROVEMENT OF EXTENSION CENTER FACILITIES	A	1,620	364	344	344	284	284							1,620	0
NAE-1-3	DEVELOPMENT OF AGRICULTURAL TECHNOLOGY INFORMATION UNITS (ATIU)	A	2,200	440	440	440	440	440							2,200	0
NAE-2	ESTABLISHMENT OF DEVELOPMENT SUPPORT COMMUNICATION CENTER (DSCC)	A	1,130	702	258	212	12	6							1,130	0
NAE-3	TRAINING OF RESEARCHERS, EXTENSION STAFF AND STATISTICS STAFF	A	2,520	689	204	204	204	204	204	204	204	204	204	204	1,503	1,017
NAE-4	INTENSIVE EXTENSION GUIDANCE PROGRAM		15,820	1,592	1,592	1,592	1,592	1,592	1,592	1,592	1,592	1,592	1,592	1,592	7,910	7,910
NAE-4-1	SUPPORTING KEY FARMER EXTENSION PROGRAM	A	3,000	300	300	300	300	300	300	300	300	300	300	300	1,500	1,500
NAE-4-2	DATE PALM REHABILITATION & IMPROVEMENT PROGRAM	A	11,820	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	5,910	5,910
NAE-4-3	PROVISION OF INPUTS FOR EXPERIMENTAL PURPOSES	A	1,000	100	100	100	100	100	100	100	100	100	100	100	500	500
TOTAL	DEVELOPMENT BUDGET TOTAL		24,000	3,877	2,978	2,892	2,572	2,516	1,936	1,836	1,836	1,836	1,836	1,836	14,823	9,177

Table 5.2.6 Annual Budget of Agricultural Production Sector
- 10-Year Plan

PROJECT NUMBER	NAME OF PROJECT/PROGRAM	PRIO.	TOTAL BUDGET (1000000)	ANNUAL BUDGET										1991 -1995	1996 -2000	
				1991	1992	1993	1994	1995	1996	1997	1998	1999	2000			
NAA-1	COLLECTION AND ORGANIZATION OF AGRICULTURAL STATISTICS		2,560	384	630	225	121								1,360	1,200
NAA-1-1	AGRICULTURAL CENSUS	A	1,900	300	350	50	50								700	1,200
NAA-1-2	ANNUAL UPDATE OF IMPORTANT AGRICULTURAL STATISTICS	A	660	84	280	175	121								660	
NAA-2	AGRICULTURAL EXHIBITION AND FESTIVAL		1,400	205	50	63	262	50							700	700
NAA-2-1	INTERNATIONAL AGRICULTURE AND FOOD EXHIBITION	A	900	223	13	212	13	212							450	450
NAA-2-2	DOMESTIC AGRICULTURAL FESTIVAL	A	500	50	50	50	50	50							250	250
NAA-3	NATIONAL PROJECT FOR PLANT PROTECTION AND AERIAL SPRAY	A	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	5,000	5,000
NAA-4	AGRICULTURAL TECHNOLOGY TRANSFER PROJECT TO FARMERS	A	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	5,000	5,000
NAA TOTAL			23,960	2,659	2,630	2,288	2,383	2,050	2,563	2,362	2,150	2,063	2,262	12,060	11,900	
NAA-1	DEVELOPMENT & IMPROVEMENT OF PLANT QUARANTINE	A	1,100	200	400	300	200								1,100	
TOTAL	DEVELOPMENT BUDGET TOTAL		25,060	2,859	3,030	2,588	2,583	2,050	2,563	2,362	2,150	2,063	2,262	13,160	11,900	

Table 5.2.7 Annual Budget of Livestock Sector - 10-Year Plan

Number of Project	Name of the Project	Project Period	Annual Budget										Total	91-95					
			1991	1992	1993	1994	1995	1996	1997	1998	1999	2000		Plan	Plan				
NLL-1	Rangeland Revegetation Project in Southern Region																		
NLL-1-1	① Establishment of Rangeland Management	2	176	176	400	400	400	400	400	400	240	240	240	240	240	240	240	2,552	
NLL-1-2	② Grazing Control	10	400	400	400	400	400	400	400	400	240	240	240	240	240	240	240	352	
NLL-2	Animal Health & Disease Control Project																		
NLL-2-1	① Development of New Quarantines	5	395	395	395	395	395	395	395	395	2,911	2,911	2,911	2,911	2,911	2,911	2,911	1,975	
NLL-2-2	② Animal Clinics Improvements	5	238	238	238	238	238	238	238	238								1,139	
NLL-2-3	③ Laboratory Development										30	30	30	30	30	30	30	18	
NLL-2-4	④ CCP Vaccine Development	3	306	30	30	30	30	30	30	30								659	
NLL-2-5	⑤ National Vaccination	10	1,359	1,359	1,359	1,359	1,359	1,359	1,359	1,359	2,246	2,246	2,246	2,246	2,246	2,246	2,246	2,882	
NLL-2-6	⑥ Supplies of Veterinary Equipment	10	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	3,000	
NLL-2-7	⑦ Brucellosis Control in South	10	139	139	139	139	139	139	139	139	123	123	123	123	123	123	123	621	
NLE-1	Livestock Extension Development																		
NLE-1-1	① Extension Method Improvement	10	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	300	
	Demonstration of Using Equipment																		150
	Visual Extension																		
	Establishment of Demonstration Unit																		
NLE-1-2	② Training Center Development																		332
NLR-1	Livestock Research Development																		
NLR-1-1	① Development of Livestock Research Centers	10	480	480	480	480	480	480	480	480	450	450	450	450	450	450	450	2,350	
NLR-1-2	② Research Centers Management Consultancy	5	437	392	392	392	392	392	392	437								2,050	
NLM-1	Livestock Marketing Improvement Project																		
NLM-1-1	① Company for Livestock Products	7	50	956	260	200	200	200	200	200	100	100	100	100	100	100	100	1,516	
NLM-1-2	② Cattle Fattening	5									739	739	739	739	739	739	739	100	
NLM-1-3	③ Cut Meat Processing	3									171	171	171	171	171	171	171	487	
NLM-1-4	④ Milk Collecting and Processing	6	25	211	86	720	102	102	102	31								1,192	
NLM-1-5	⑤ Hides and Skins Development	3									64	64	64	64	64	64	64	192	
NLM-1-6	⑥ Cattle Destocking Subsidy	5	500	500	500	500	500	500	500	500								2,500	
NLM-1-7	⑦ Marketing Promotion	5									84	84	84	84	84	84	84	335	
NLL-3	Livestock Input Company Project	2																	
NLL-4	Small Farm Development Support Project																		
NLL-4-1	① Smallholder Poultry Production	5	1,761	1,754	1,772	1,774	1,774	1,794	1,794	1,794	1,699	1,699	1,699	1,699	1,699	1,699	1,699	8,855	
NLL-4-2	② Intensive Livestock Production	10	1,698	1,698	1,698	1,698	1,698	1,698	1,698	1,698	1,698	1,698	1,698	1,698	1,698	1,698	1,698	8,490	
NLL-4-3	③ A.I. Services for Dairy Cow																		60
NLL-5	Livestock Specialized Services																		
NAA-1-1	① Livestock Census	2	524								524								524
NLL-5-1	② National Disease Survey	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	55	
NLM-2	Marketing Survey	1	143																143
NLL-5-2	④ Consultancy Services (Study)	10	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	500	
	Total		9,538	10,019	9,945	10,435	9,979	7,031	5,621	5,559	5,574	5,619	5,619	5,619	5,619	5,619	5,619	49,916	
	Percentage																		37.1

Table 5.2.9 Annual Budget of Agricultural Produce Processing Sector
- 10-Year Plan

PROJECT NUMBER	NAME OF PROJECT/PROGRAM	PRIO.	TOTAL BUDGET (1000000)	ANNUAL BUDGET										1991 -1995	1991 -1995 -2000		
				1991	1992	1993	1994	1995	1996	1997	1998	1999	2000				
NP-1	Establishment of Private Company for Agro-Industry and Supply of Agricultural Inputs and Services	A	5,100	100	2,500	2,500										5,100	
NP-2	Establishment of Agro-Industrial Complex for Processing of Dates, Limes and Tomatoes	A	1,410	140	430	406	150				18	120	18	120		1,134	276
NP-3	Establishment of Pickling and Unneer-Processing Plant	A	1,732	132	1,492					13	155					1,614	168
NP-4	Establishment of Coconut-Processing Plant Coconut Farm	A	2,626	1,390	152	412	472	280								2,826	
	Coconut-Processing Plant		2,100	1,390	130	160	220	200								2,100	
			526	22	252	252										526	
TOTAL	DEVELOPMENT BUDGET TOTAL		10,918	1,770	4,564	3,318	522	200	31	275	18	120			10,474	444	

Table 5.2.10 Annual Budget of Inter-Sectoral Project
- 10-Year Plan

PROJECT NUMBER	NAME OF PROJECT/PROGRAM	PRIO.	TOTAL BUDGET (1000000)	ANNUAL BUDGET										1991 -1995	1991 -1995 -2000		
				1991	1992	1993	1994	1995	1996	1997	1998	1999	2000				
SI-1	Integrated Agricultural Development Project in Nejd 1) Pilot Farm (50ha) 2) Main Development Project (450ha)	A	18,583	1,855	1,855	1,855	3,311	4,965	3,311							13,242	3,311
			1,655	1,655												1,655	
			14,898	1,655	1,855	3,311	4,965	3,311								11,587	3,311
SI-2	Improvement and Maintenance of MAF Facilities 1) Ministry Building 2) Office Building for Directorate General of Agriculture in 6 Regions 3) Separate Consolidated Allocation for All Consultancies	A	20,991	5,895	5,895	3,632	800	800	800	800	800	800	800	800	800	16,991	4,200
			5,191	2,595	2,596											5,191	
			7,800	2,500	2,500	2,800										7,800	
			8,000	800	800	800	800	800	800	800	800	800	800	800	800	4,000	4,000
SI-3	Artificial Rainfall Project	B	2,500							1,250	1,250					2,500	
SI-1	Citizen's Compensation against Natural Crisis	A	3,000	300	300	300	300	300	300	300	300	300	300	300	300	1,500	1,500
SI-2	Master Plan for Development of Date Palm Cultivation	A	500	500												500	
TOTAL	DEVELOPMENT BUDGET TOTAL		43,844	8,450	7,851	5,555	4,411	6,066	5,651	2,350	1,100	1,100	1,100	1,100	32,333	11,311	

Table 5.2.11 Regional Budget Total of 10-Year Plan

SECTOR	PROJECT NUMBER	NAME OF PROJECT/PROGRAM	TOTAL BUDGET (1000R0)	REGION					TOTAL	
				MUSCAT	BATINAH	SHARQIYA	DAKHLIYA	DAHIRA		MUSANDAM
Irrigation and Dam	NW-1	Improvement of Irrigation System and Centrally-Controlled Water-Distribution System	357,397	11,534	145,108	45,588	83,274	53,487	15,306	9,104
	NW-2	Subsidy for New Irrigation System Project	60,990		36,980	3,880	9,300	7,050	4,620	
	NW-3	Legal Framework for Agricultural Water Use	37,500	750	20,895	4,875	5,250	3,375	2,250	375
	NW-4	Recharge Dams	250	10	128	38	35	25	25	8
	NW-5	Sub-surface (Underground) Dams	80,633	4,750	43,137	8,481	18,373	13,122	1,450	2,400
	NW-6	AFIS	5,000		2,785	35	2,138	35		35
	NW-7	Wells	113,480	5,800	26,138	19,838	48,818	21,088		205
	NW-8	Spring	36,248	205	9,427	7,638	5,434	7,024	307	
	NW-9	Soil Salinity	5,914		3,185	1,050	5,700	1,050	5,914	
	NW-10	Erosion Control and Protection of Agricultural Land against Floods	11,510		3,185	1,050	5,700	1,050	5,914	
Agricultural Research	NAR-1	Survey and Monitoring	5,940	219	2,749	659	1,242	758	197	118
	NAR-2	Support for Agricultural Research Stations	10,200	160	9,248	2,052	2,185	1,480	2,985	180
	NAR-3	Establishment of New Research Units and Laboratories	5,800		2,000	850	350	900	1,800	
	NAR-4	Development and Establishment of Experimental Farms and Nurseries	2,000		450	300	550	250	350	100
	NAR-5	Forest-Improvement Program	2,000	80	500	300	280	200	600	40
	NAR-6	Establishment of Locust Survey and Control Unit	2,000	80	1,040	300	280	200	600	40
Agricultural Extension	NAR-1	Soil Surveys	1,300		1,300					
	NAR-2	Development and Improvement of Extension Centers and Facilities	24,000	1,959	7,285	4,816	4,523	3,428	1,277	852
	NAR-3	Training of Researchers, Extension Staff and Statistics	4,470	172	1,290	611	937	743	433	284
	NAR-4	Establishment of Development Support Communication Center (DSCC)	1,180		1,180					
	NAR-5	Intensive Extension Guidance Program	2,520	77	1,145	265	325	285	334	88
	NAR-6	Collection and Organization of Agricultural Statistics	15,800	220	4,850	3,880	3,260	2,400	510	480
Agricultural Production	NAP-1	Agricultural Exhibitions and Festivals	23,860	1,848	12,151	3,255	2,527	2,925	2,025	522
	NAP-2	National Project for Plant Protection and Aerial Spraying	1,400	871	71	71	71	71	71	71
	NAP-3	Agricultural Technology Transfer to Farmers Project	10,000	300	5,400	1,400	1,100	900	700	280
	NAP-4	Development and Improvement of Plant Quarantine	10,000	300	5,400	1,400	1,100	900	700	280
	NAP-5	Rangeland Revegetation Project in Southern Region	18,320	2,435	17,045	7,580	3,388	2,061	33,061	1,740
	NAP-6	Animal Health and Disease Control Project	31,433	793	7,499	3,227	2,649	4,575	11,092	988
	NAP-7	Livestock Extension Development Project	632	9	241	38	38	36	271	9
	NAP-8	Livestock Research Development Project	8,550		2,445		1,973		2,131	
	NAP-9	Livestock Marketing Improvement Project	7,824	81	198	188	188	188	6,988	13
	NAP-10	Small Farm Development Support Project	1,359	283						
Distribution	NAP-1	Establishment of Wholesale Market	25,899	518	8,008	3,933	4,031	3,058	7,621	690
	NAP-2	Supply and Demand Forecast of Agricultural Produce	2,381	69	575	278	238	278	805	69
	NAP-3	Establishment of Shipping Organization for Farmers	30,057	10,372	6,235	2,843	2,745	3,087	4,094	91
	NAP-4	Fortification of PAMAP	18,328	7,243	2,468	1,682	1,682	2,468	2,783	
Agricultural Processing	NP-1	Establishment of Private Company for Agro-Industry and Supply of Agricultural Inputs and Services	444		397	165	165	165	165	
	NP-2	Establishment of Agro-Industrial Complex for Processing of Dates, Limes and Tomatoes	10,070	2,320	3,371	997	890	455	1,748	81
	NP-3	Establishment of Pickling and Vinegar-Processing Plant	18,918	1,480	4,009	785	1,293	518	2,173	182
	NP-4	Establishment of Coconut-Processing Plant	5,100	294	2,652	785	714	518	153	182
Inter-Sectoral	NI-1	Integrated Agricultural Development Project in Meid	1,410	449	469	495	495			
	NI-2	Improvement and Maintenance of RRF Facilities	1,782	987	801	84	84		2,626	
	NI-3	Artificial Rainfall Project	43,624	5,655	7,202	2,980	2,874	2,410	28,951	1,482
	OI-1	Citizen's Compensation against Natural Crisis	20,991	5,511	5,418	2,450	2,370	2,050	1,750	1,418
	OI-2	Master Plan for Development of Date Palm Cultivation	2,500						2,500	
			3,000	130	1,550	450	420	380	90	82
Totals			588,006	35,543	288,353	69,746	189,912	74,901	83,078	8,073

Table 5.2.13 Regional Budget of Agricultural Research Sector
- 10-Year Plan

PROJECT NUMBER	NAME OF PROJECT/PROGRAM	PRIO.	TOTAL BUDGET (1000RO)	REGION						
				MUSCAT	BATINAH	SHARQIYAH	AKHLIYAH	DHAHIRA	JANUBIYAH	MUSANDAM
NAR-1	SUPPORT FOR AGRICULTURAL RESEARCH STATIONS		5,300		2,000	850	850	600	1,000	
NAR-1-1	AGRICULTURAL RESEARCH FACILITIES AT RUMAIS	A	1,100		1,100					
NAR-1-2	AGRICULTURAL RESEARCH FACILITIES AT JEMAH	A	850				850			
NAR-1-3	AGRICULTURAL RESEARCH FACILITIES AT SALALAH	A	1,000						1,000	
NAR-1-4	AGRICULTURAL RESEARCH FACILITIES AT SOHAR	A	900		900					
NAR-1-5	AGRICULTURAL RESEARCH FACILITIES AT SHARQIYA	A	850			850				
NAR-1-6	AGRICULTURAL RESEARCH FACILITIES AT DHAHIRA	A	600					600		
NAR-2	ESTABLISHMENT OF NEW RESEARCH UNITS AND LABORATORIES		5,600		5,250		75		275	
NAR-2-1	AGRICULTURAL MACHINERY RESEARCH UNIT AT RUMAIS	A	300		800					
NAR-2-2	TOXICOLOGY LABORATORY (RUMAIS)	A	300		300					
NAR-2-3	SEED AND TUBER PRODUCTION RESEARCH UNIT (RUMAIS)	A	650		650					
NAR-2-4	CENTRAL SOIL, PLANT AND WATER ANALYSIS LABORATORY (RUMAIS)	A	800		800					
NAR-2-5	LIBRARY AND DOCUMENTATION CENTER (RUMAIS)	A	250		250					
NAR-2-6	PLANT WATER REQUIREMENT DETERMINATION UNIT (SALALAH)	A	100						100	
NAR-2-7	MEDICAL AND PERFUME PLANT RESEARCH UNIT (SALALAH)	A	75							75
NAR-2-8	DISEASE AND PEST FORECASTING UNIT (RUMAIS)	A	100		100					
NAR-2-9	SALT TOLERANT PLANTS AND HALOPHYTES RESEARCH UNITS (RUMAIS)	A	650		650					
NAR-2-10	HONEY BEE LABORATORY (RUMAIS)	A	200		200					200
NAR-2-11	HONEY BEE RESEARCH UNIT (SALALAH)	A	100							100
NAR-2-12	HONEY BEE RESEARCH UNIT (JEMAH)	A	75				75			
NAR-2-13	DATE PALM RESEARCH UNIT (RUMAIS)	A	1,500		1,500					
NAR-3	DEVELOPMENT AND ESTABLISHMENT OF EXPERIMENTAL FARMS AND NURSERIES		2,000		450	300	550	250	350	100
NAR-3-1	DEVELOPMENT OF ARABIC COFFEE EXPERIMENTAL FARM IN SALALAH	A	200							200
NAR-3-2	DEVELOPMENT OF NURSERIES AT RUMAIS AND BARKA	A	300		300					
NAR-3-3	DEVELOPMENT OF NURSERIES AT SOHAR	A	150		150					
NAR-3-4	DEVELOPMENT OF NURSERIES IN INTERIOR	A	400				400			
NAR-3-5	DEVELOPMENT OF NURSERIES IN SOUTHERN REGION	A	150						150	
NAR-3-6	DEVELOPMENT OF EXPERIMENTAL FARM AT WADI AURIYAT	A	150				150			
NAR-3-7	DEVELOPMENT OF EXPERIMENTAL FARM AT MUSANDAM	A	100							100
NAR-3-8	DEVELOPMENT OF EXPERIMENTAL FARM AT SHARQIYA	A	300			300				
NAR-3-9	DEVELOPMENT OF EXPERIMENTAL FARM AT DHAHIRA	A	250					250		
NAR-4	FORESTRY-IMPROVEMENT PROGRAM	A	2,000	30	500	300	200	200	600	40
NAR-5	ESTABLISHMENT OF LOCUST SURVEY AND CENTRAL UNIT (RUMAIS, ALL REGION)	A	2,000	30	1,040	300	200	200	50	40
NAR-6	SOIL SURVEYS	A	1,300			300	150	150	700	
TOTAL	DEVELOPMENT BUDGET TOTAL		18,200	160	9,240	2,050	2,185	1,400	2,385	180

Table 5.2.14 Regional Budget of Agricultural Extension Sector
- 10-Year Plan

PROJECT NUMBER	NAME OF PROJECT/PROGRAM	PRIO.	TOTAL BUDGET (1000R0)	REGION						
				MUSCAT	BATINAH	SHARQIYAH	DAKHILIYAH	HADHIRAH	JANUBIYAH	MUSANDAM
NAE-1	IMPROVEMENT AND DEVELOPMENT OF EXTENSION CENTERS AND FACILITIES		4,470	172	1,290	611	937	743	433	234
NAE-1-1	ESTABLISHMENT OF EXTENSION CENTERS IN REMOTE AREA	A	850		250	50	100	150		100
NAE-1-2	IMPROVEMENT OF EXTENSION CENTER FACILITIES	A	1,620	72	540	211	287	243	133	84
NAE-1-3	DEVELOPMENT OF AGRICULTURAL TECHNOLOGY INFORMATION UNITS (ATIU)	A	2,200	100	500	330	550	350	250	100
NAE-2	ESTABLISHMENT OF DEVELOPMENT SUPPORT COMMUNICATION CENTER (DSCC)	A	1,190							
NAE-3	TRAINING OF RESEARCHERS, EXTENSION STAFF AND STATISTICS STAFF	A	2,520	77	1,145	265	326	285	334	89
NAE-4	INTENSIVE EXTENSION GUIDANCE PROGRAM		15,820	520	4,850	3,880	3,350	2,400	510	480
NAE-4-1	SUPPORTING KEY FARMER EXTENSION PROGRAM	A	3,000	100	1,400	450	420	300	270	60
NAE-4-2	DATE PALM REHABILITATION & IMPROVEMENT PROGRAM	A	11,820	400	3,000	3,200	2,700	2,000	120	400
NAE-4-3	PROVISION OF INPUTS FOR EXPERIMENTAL PURPOSES	A	1,000	20	450	150	140	100	120	20
TOTAL	DEVELOPMENT BUDGET TOTAL		24,000	1,959	7,285	4,676	4,623	3,428	1,277	852

Table 5.2.15 Regional Budget of Agricultural Production Sector
- 10-Year Plan

PROJECT NUMBER	NAME OF PROJECT/PROGRAM	PRIO.	TOTAL BUDGET (1000R0)	REGION						
				MUSCAT	BATINAH	SHARQIYAH	DAKHILIYAH	HADHIRAH	JANUBIYAH	MUSANDAM
NAA-1	COLLECTION AND ORGANIZATION OF AGRICULTURAL STATISTICS		2,500	77	1,280	384	358	256	134	51
NAA-1-1	AGRICULTURAL CENSUS	A	1,900	57	950	285	266	190	114	38
NAA-1-2	ANNUAL UPDATE OF IMPORTANT AGRICULTURAL STATISTICS	A	550	20	330	99	92	66	40	13
NAA-2	AGRICULTURAL EXHIBITION AND FESTIVAL		1,400	971	71	71	71	71	71	71
NAA-2-1	INTERNATIONAL AGRICULTURE AND FOOD EXHIBITION	A	900	900						
NAA-2-2	DOMESTIC AGRICULTURAL FESTIVAL	A	500	71	71	71	71	71	71	71
NAA-3	NATIONAL PROJECT FOR PLANT PROTECTION AND AERIAL SPRAY	A	10,000	300	5,400	1,400	1,100	900	700	200
NAA-4	AGRICULTURAL TECHNOLOGY TRANSFER PROJECT TO FARMERS	A	10,000	300	5,400	1,400	1,100	900	700	200
NAA TOTAL			23,900	1,648	12,151	3,255	2,629	2,127	1,625	522
NAD-1	DEVELOPMENT & IMPROVEMENT OF PLANT QUARANTINE	A	1,100	300					400	400
TOTAL	DEVELOPMENT BUDGET TOTAL		25,000	1,948	12,151	3,255	2,629	2,527	2,025	522

Table 5.2.18 Regional Budget of Agricultural Produce Processing Sector
- 10-Year Plan

PROJECT NUMBER	NAME OF PROJECT/PROGRAM	PRIO.	TOTAL BUDGET (1000RO)	REGION						
				MUSCAT	BATINAH	SHARQIYA	ADAKHLIYA	DHAHIRAJANUBIYA	MUSANDAM	
NP-1	Establishment of Private Company for Agro-Industry and Supply of Agricultural Inputs and Services	A	5,100	204	2,662	765	714	510	163	102
NP-2	Establishment of Agro-Industrial Complex for Processing of Dates, Limes and Tomatoes	A	1,410	449	466		495			
NP-3	Establishment of Pickling and Vinegar-Processing Plant	A	1,782	307	391		84			
NP-4	Establishment of Coconut-Processing Plant	A	2,826						2,626	
	Coconut Farm		2,100						2,100	
	Coconut-Processing Plant		526						526	
TOTAL	DEVELOPMENT BUDGET TOTAL		10,918	1,460	4,009	765	1,293	510	2,779	102

Table 5.2.19 Regional Budget of Inter-Sectoral Project
- 10-Year Plan

PROJECT NUMBER	NAME OF PROJECT/PROGRAM	PRIO.	TOTAL BUDGET (1000RO)	REGION						
				MUSCAT	BATINAH	SHARQIYA	ADAKHLIYA	DHAHIRAJANUBIYA	MUSANDAM	
NI-1	Integrated Agricultural Development Project in Nejd	A	16,553						16,553	
	1) Pilot Farm (50ha)		1,655						1,655	
	2) Main Development Project (450ha)		14,898						14,898	
NI-2	Improvement and Maintenance of MAF Facilities	A	20,991	5,511	5,410	2,450	2,370	2,060	1,700	1,410
	1) Ministry Building		5,191	5,191						
	2) Office Building for Directorate General of Agriculture in 6 Regions		7,300		1,250	1,350	1,250	1,250	1,550	1,250
	3) Separate Consolidated Allocation for All Consultancies		8,600	320	4,160	1,200	1,120	900	240	160
NI-3	Artificial Rainfall Project	B	2,500						2,500	
OI-1	Citizen's Compensation against Natural Crisis	A	3,000	120	1,500	450	420	300	90	60
OI-2	Master Plan for Development of Date Palm Cultivation	A	600	24	312	90	84	60	19	12
TOTAL	DEVELOPMENT BUDGET TOTAL		43,644	5,555	7,292	2,900	2,674	2,410	20,951	1,482

Table 5.2.20 Budget Total by Finance Source - 10-Year Plan

SECTOR	PROJECT NUMBER	NAME OF PROJECT/PROGRAM	TOTAL BUDGET (1000R)	STATE GENERAL BUDGET (1000R)				SHARED WITH PRIVATE	PRIVATE	SELF FINANCE	OTHERS	REMARKS
				TOTAL	MAF	PAHAP	OBAP					
Irrigation and Dam	NH-1	Improvement of Irrigation System and Centrally-Controlled Water-Distribution System	394,997	394,997	357,397		37,500					
	NH-2	Subsidy for New Irrigation System Project	80,590	80,590								
	NH-3	Legal Framework for Agricultural Water Use	75,000	75,000	37,500		37,500					
	NH-4	Research Dams	86,833	86,833	250		250					
	NH-5	Sub-surface (Underground) Dams	5,000	5,000	5,000							
	NH-6	Afaj	113,420	113,420	113,420							
	NH-7	Wells	30,240	30,240	30,240							
	NH-8	Springs	5,814	5,814	5,814							
	NH-9	Erosion Control and Protection of Agricultural Land against Floods	11,510	11,510	11,510							
Agricultural Research	NH-10	Survey and Monitoring	5,840	5,840	5,840							
	NAR-1	Support for Agricultural Research Stations	18,200	18,200	18,200							
	NAR-2	Establishment of New Research Units and Laboratories	5,000	5,000	5,000							
	NAR-3	Development and Establishment of Experimental Farms and Nurseries	2,000	2,000	2,000							
	NAR-4	Forestry-Improvement Program	2,000	2,000	2,000							
	NAR-5	Establishment of Locust Survey and Control Unit	2,000	2,000	2,000							
Agricultural Extension	NAR-6	Soil Surveys	1,300	1,300	1,300							
	NAE-1	Improvement and Development of Extension Centers and Facilities	24,000	24,000	24,000							
	NAE-2	Establishment of Development Support Communication Center (DSCC)	4,470	4,470	4,470							
	NAE-3	Training of Researchers, Extension Staff and Statistics Staff	1,190	1,190	1,190							
	NAE-4	Intensive Extension Guidance Program	2,520	2,520	2,520							
	NAP-1	Collection and Organization of Agricultural Statistics	15,820	15,820	15,820							
	NAP-2	Agricultural Exhibitions and Festivals	25,000	25,000	25,000							
	NAP-3	National Project for Plant Protection and Insects Spraying	2,560	2,560	2,560							
	NAP-4	Agricultural Technology Transfer to Farmers Project	1,420	1,420	1,420							
	NAP-5	Development and Improvement of Plant Quarantine	10,000	10,000	10,000							
Livestock	MAG-1	Development and Improvement of Plant Quarantine	1,190	1,190	1,190							
	MAG-2	Development and Improvement of Plant Quarantine	92,803	92,803	82,571	78,114	1,208	3,251	3,398	8,717	118	118 UNDP (FAD)
	MLL-1	Rangeland Revegetation Project in Southern Region	8,316	8,316	8,316			2,646				
	MLL-2	Animal Health and Disease Control Project	31,453	31,453	31,453							
	MLL-3	Livestock Extension Development Project	6,552	6,552	6,552							
	MLR-1	Livestock Research Development Project	6,550	6,550	6,550							
	MLH-1	Livestock Marketing Improvement Project	12,282	12,282	7,664	8,398	1,286			4,678		
	MLL-3	Livestock Input Company Project	5,795	5,795	1,359					2,029		
	MLL-4	Small Farm Development Support Project	25,524	25,524	25,893			605				
	MLL-5	Livestock Specialized Services Program	2,301	2,301	2,301							
	MLL-5	Livestock Specialized Services Program	35,932	35,932	30,957			30,957		5,925		
	Distribution	ND-1	Establishment of Wholesale Markets	24,251	24,251	18,326			18,326		5,925	
ND-2		Supply and Demand Forecast of Agricultural Produce	444	444	444			444				
ND-3		Establishment of Shipping Organization for Farmers	1,220	1,220	1,220			1,220				
ND-4		Fertilization of Pamp	10,077	10,077	10,077			10,077				
Agricultural Produce Processing	NP-1	Establishment of Private Company for Agro-Industry and Supply of Agricultural Inputs and Services	24,330	24,330	10,918	10,918			8,256	5,154		
	NP-2	Establishment of Agricultural Inputs and Services	10,100	10,100	5,100	5,100			3,000	2,000		
	NP-2	Establishment of Agro-industrial Complex for Processing of Dates, Limes and Tomatoes	7,048	7,048	1,410	1,410			3,524	2,114		
	NP-3	Establishment of Pickling and Vinegar-Processing Plant	2,452	2,452	1,782	1,782			418	251		
Inter-Sectoral	NP-4	Establishment of Coconut-Processing Plant	4,730	4,730	2,628	2,628			1,315	788		
	NI-1	Integrated Agricultural Development Project in Nejis	43,644	43,644	43,644							
	NI-2	Improvement and Maintenance of MF Facilities	16,553	16,553	16,553							
	NI-3	Artificial Rainfall Project	20,931	20,931	20,931							
	OI-1	Citizen's Compensation against Natural Crisis	2,500	2,500	2,500							
	OI-1	Citizen's Compensation against Natural Crisis	3,000	3,000	3,000							
	OI-2	Master Plan for Development of Date Palm Cultivation	608	608	608							
	Total		658,980	658,980	557,303	557,303	31,273	40,751	11,056	11,871	5,925	118

Table 5.2.21 Budget of Irrigation and Dam Sector by Finance Source
- 10-Year Plan

PROJECT NUMBER	NAME OF PROJECT/PROGRAM	PRIO.	TOTAL BUDGET (10000)	STATE GENERAL BUDGET (10000)			SHARED WITH PRIVATE	PRIVATE	SELF FINANCE	OTHERS	REMARKS
				TOTAL	PRATAP	OBAR					
NW-1	Improvement of Irrigation System and Centrally-Controlled Water-Distribution System Study Phase(I,S,F,S) Pilot Project	A	60,990	60,990	60,990						
NW-2	Subsidy for New Irrigation System Project for 30,000ha	A	75,000	75,000	37,500						
NW-3	Legal Framework for Agricultural Water-Use	A	250	250							
NW-4	Recharge Dams										
NW-4-1	Groundwater-Recharge Scheme Study Phase Construction Phase	A	86,633	86,633	86,633						
NW-4-2	Maintenance and Improvement of Existing and Newly Constructed Dams										
NW-4-3	Recharged Water Effective Use Pilot Project(Study)		500	500	500						
NW-4-4	Identification of New Groundwater-Recharge Schemes		8,000	8,000	8,000						
NW-5	Sub-Surface (Underground) Dams Reconnaissance Study Preliminary Study Feasibility Study Pilot Project(Construction) Observation and Monitoring	A	5,000	5,000	5,000						
NW-6	Aflaj										
NW-6-1	Repair and Maintenance of Aflaj	A	113,420	113,420	113,420						
NW-6-2	Distribution System Improvement Pilot Project in Oasis(Study) Improvement and Maintenance of Major Aflaj		90,000	90,000	90,000						
NW-6-3	Study Construction		1,500	1,500	1,500						
NW-7	Wells										
NW-7-1	Subsidy for Repair of Existing Open Wells	A	30,240	30,240	30,240						
NW-7-2	Assistant Wells for Aflaj		10,240	10,240	10,240						
NW-8	Springs										
NW-8-1	Improvement of Springs	A	5,914	5,914	5,914						
NW-8-2	Annual Maintenance of Open Channel for Springs		5,250	5,250	5,250						
NW-9	Erosion Control and Protection of Agricultural Land against Floods Study Phase Construction Phase	A	11,510	11,510	11,510						
NW-10	Survey and Monitoring										
NW-10-1	Long-term Plan for Aerial Photography and Ortho-photo Mapping	A	5,940	5,940	5,940						
NW-10-2	Establishment and Operation of Hydrological Monitoring Network for Recharge Dams		2,200	2,200	2,200						
TOTAL	DEVELOPMENT BUDGET TOTAL		394,997	394,997	357,397					37,500	

Table 5.2.22 Budget of Agricultural Research Sector by Finance Source
- 10-Year Plan

PROJECT NUMBER	NAME OF PROJECT/PROGRAM	TOTAL STATE GENERAL BUDGET (1000RO)				SHARED WITH PRIVATE	OTHERS	REMARKS
		BUDGET	MAF	PAMAP	OBAF ODB			
NAR-1	SUPPORT FOR AGRICULTURAL RESEARCH STATIONS	5,300	5,300					
NAR-1-1	AGRICULTURAL RESEARCH FACILITIES AT RUMAIS	1,100	1,100					
NAR-1-2	AGRICULTURAL RESEARCH FACILITIES AT JEMAH	850	850					
NAR-1-3	AGRICULTURAL RESEARCH FACILITIES AT SALALAH	1,000	1,000					
NAR-1-4	AGRICULTURAL RESEARCH FACILITIES AT SOHAR	800	800					
NAR-1-5	AGRICULTURAL RESEARCH FACILITIES AT SHARQIYA	850	850					
NAR-1-6	AGRICULTURAL RESEARCH FACILITIES AT DHAHIRA	800	800					
NAR-2	ESTABLISHMENT OF NEW RESEARCH UNITS AND LABORATORIES	5,800	5,800					
NAR-2-1	AGRICULTURAL MACHINERY RESEARCH UNIT AT RUMAIS	800	800					
NAR-2-2	TOXICOLOGY LABORATORY (RUMAIS)	300	300					
NAR-2-3	SEED AND TUBER PRODUCTION RESEARCH UNIT (RUMAIS)	850	850					
NAR-2-4	CENTRAL SOIL, PLANT AND WATER ANALYSIS LABORATORY (RUMAIS)	800	800					
NAR-2-5	LIBRARY AND DOCUMENTATION CENTER (RUMAIS)	250	250					
NAR-2-6	PLANT WATER REQUIREMENT DETERMINATION UNIT (SALALAH)	100	100					
NAR-2-7	MEDICAL AND PERFUME PLANT RESEARCH UNIT (SALALAH)	75	75					
NAR-2-8	DISEASE AND PEST FORECASTING UNIT (RUMAIS)	100	100					
NAR-2-9	SALT TOLERANT PLANTS AND HALOPHYTES RESEARCH UNITS (RUMAIS)	850	850					
NAR-2-10	HONEY BEE LABORATORY (RUMAIS)	200	200					
NAR-2-11	HONEY BEE RESEARCH UNIT (SALALAH)	100	100					
NAR-2-12	HONEY BEE RESEARCH UNIT (JEMAH)	75	75					
NAR-2-13	DATE PALM RESEARCH UNIT (RUMAIS)	1,500	1,500					
NAR-3	DEVELOPMENT AND ESTABLISHMENT OF EXPERIMENTAL FARMS AND NURSERIES	2,000	2,000					
NAR-3-1	DEVELOPMENT OF ARABIC COFFEE EXPERIMENTAL FARM IN SALALAH	200	200					
NAR-3-2	DEVELOPMENT OF NURSERIES AT RUMAIS AND BARKA	300	300					
NAR-3-3	DEVELOPMENT OF NURSERIES AT SOHAR	150	150					
NAR-3-4	DEVELOPMENT OF NURSERIES IN INTERIOR	400	400					
NAR-3-5	DEVELOPMENT OF NURSERIES IN SOUTHERN REGION	150	150					
NAR-3-6	DEVELOPMENT OF NURSERIES AT WADI QURIYAT	150	150					
NAR-3-7	DEVELOPMENT OF NURSERIES AT MUSANDAM	100	100					
NAR-3-8	DEVELOPMENT OF NURSERIES AT SHARQIYA	300	300					
NAR-3-9	DEVELOPMENT OF NURSERIES AT DHAHIRA	250	250					
NAR-4	FORESTRY-IMPROVEMENT PROGRAM	2,000	2,000					
NAR-5	ESTABLISHMENT OF LOCUST SURVEY AND CENTRAL UNIT (RUMAIS, ALL REGION)	2,000	2,000					
NAR-6	SOIL SURVEYS	1,300	1,300					
TOTAL	DEVELOPMENT BUDGET TOTAL	18,200	18,200					

Table 5.2.23 Budget of Agricultural Extension Sector by Finance
Source - 10-Year Plan

PROJECT NUMBER	NAME OF PROJECT/PROGRAM	TOTAL STATE GENERAL BUDGET (1000000)			SHARED WITH PRIVATE		OTHERS	REMARKS
		BUDGET (1000000)	PARAP	RAF	OBRAF	ODB		
NAE-1	IMPROVEMENT AND DEVELOPMENT OF EXTENSION CENTERS AND FACILITIES	4,470	4,470	4,470				
NAE-1-1	ESTABLISHMENT OF EXTENSION CENTERS IN REMOTE AREA	650	650	650				
NAE-1-2	IMPROVEMENT OF EXTENSION CENTER FACILITIES	1,620	1,620	1,620				
NAE-1-3	DEVELOPMENT OF AGRICULTURAL TECHNOLOGY INFORMATION UNITS (ATIU)	2,200	2,200	2,200				
NAE-2	ESTABLISHMENT OF DEVELOPMENT SUPPORT COMMUNICATION CENTER (DSCC)	1,190	1,190	1,190				
NAE-3	TRAINING OF RESEARCHERS, EXTENSION STAFF AND STATISTICS STAFF	2,520	2,520	2,520				
NAE-4	INTENSIVE EXTENSION GUIDANCE PROGRAM	15,820	15,820	15,820				
NAE-4-1	SUPPORTING KEY FARMER EXTENSION PROGRAM	3,000	3,000	3,000				
NAE-4-2	DATE PALM REHABILITATION & IMPROVEMENT PROGRAM	11,820	11,820	11,820				
NAE-4-3	PROVISION OF INPUTS FOR EXPERIMENTAL PURPOSES	1,000	1,000	1,000				
TOTAL	DEVELOPMENT BUDGET TOTAL	24,000	24,000	24,000				

Table 5.2.24 Budget of Agricultural Production Sector by Finance
Source - 10-Year Plan

PROJECT NUMBER	NAME OF PROJECT/PROGRAM	TOTAL STATE GENERAL BUDGET (1000000)			SHARED WITH PRIVATE		OTHERS	REMARKS
		BUDGET (1000000)	RAF	PAMAP	OBRAF	ODB		
NAA-1	COLLECTION AND ORGANIZATION OF AGRICULTURAL STATISTICS	2,560	2,560	2,560				
NAA-1-1	AGRICULTURAL CENSUS	1,900	1,900	1,900				
NAA-1-2	ANNUAL UPDATE OF IMPORTANT AGRICULTURAL STATISTICS	660	660	660				
NAA-2	AGRICULTURAL EXHIBITION AND FESTIVAL	1,400	1,400	1,400				
NAA-2-1	INTERNATIONAL AGRICULTURE AND FOOD EXHIBITION	900	900	900				
NAA-2-2	DOMESTIC AGRICULTURAL FESTIVAL	500	500	500				
NAA-3	NATIONAL PROJECT FOR PLANT PROTECTION AND AERIAL SPRAY	10,000	10,000	10,000				
NAA-4	AGRICULTURAL TECHNOLOGY TRANSFER PROJECT TO FARMERS	10,000	10,000	10,000				
NAA TOTAL		23,960	23,960	23,960				
NAD-1	DEVELOPMENT & IMPROVEMENT OF PLANT QUARANTINE	1,100	1,100	1,100				
TOTAL	DEVELOPMENT BUDGET TOTAL	25,060	25,060	25,060				

Table 5.2.25 Budget of Livestock Sector by Finance Source
- 10-Year Plan

PROJECT NUMBER	NAME OF PROJECT/PROGRAMME	PRIO.	TOTAL COST (1000R0)	GENERAL BUDGET (1000R0)				PUBLIC SHARE H.	PRIVATE FINANCE	OTHERS	REMARKS
				MAF	PAMAP	OBAP	ODB				
NLL-1	Rangeland Revegetation Project in Southern Region		6,316	3,552							
NLL-1-1	① Establishment of Rangeland Management	A	470	352						118 UNDP (FAO)	
NLL-1-2	② Grazing Control	B	5,846	3,200		2,646					
NLL-2	Animal Health & Disease Control Project		31,423	31,423							
NLG-1	① Development of New Quarantines	A	1,975	1,975							
NLL-2-1	① Animal Clinics Improvements	A	1,188	1,188							
NLL-2-2	② Laboratory Development	A	819	819							
NLL-2-3	③ CCPP Vaccine Development	C	90	90							
NLL-2-4	④ National Vaccination	A	20,115	20,115							
NLL-2-5	⑤ Supplies of Veterinary Equipment	B	6,000	6,000							
NLL-2-6	⑥ Brucellosis Control in South	B	1,236	1,236							
NLE-1	Livestock Extension Development		632	632							
NLE-1-1	① Extension Method Improvement	A	300	300							
	• Demonstration of Using Equipment										
	• Visual Extension										
	• Establishment of Demonstration Unit										
NLE-1-2	② Training Center Development	B	332	332							
NLR-1	Livestock Research Development		6,550	6,550							
NLR-1-1	① Development of Livestock Research Centers	A	4,500	4,500							
NLR-1-2	② Research Centers Management Consultancy	A	2,050	2,050							
NLM-1	Livestock Marketing Improvement Project		12,282	6,398	1,205			4,678			
NLM-1-1	① Company for Livestock Products	A	3,382	1,716			1,666				
NLM-1-2	② Cattle Fattening	B	1,908	979			329			* (979) Marketing Company	
NLM-1-3	③ Cut Meat Processing	C	1,074	537			537			* (537) Marketing Company	
NLM-1-4	④ Milk Collecting and Processing	B	2,384	1,192			1,192			* (1,192) Marketing Company	
NLM-1-5	⑤ Hides and Skins Development	C	524	262			262			* (262) Marketing Company	
NLM-1-6	⑥ Cattle Destocking Subsidy	A	2,500	1,200						* (1,200) Marketing Company	
NLM-1-7	⑦ Marketing Promotion	C	510	212	288		92			* (92) Marketing Company	
NLL-3	Livestock Input Company Project	S	8,795	1,359			3,398	2,039			
NLL-4	Small Farm Development Support Project		26,504	26,504							
NLL-4-1	① Smallholder Poultry Production	A	8,855	8,855							
NLL-4-2	② Intensive Livestock Production	A	17,589	18,964	625						
NLL-4-3	③ A.I. Services for Dairy Cow	B	60	60							
NLL-5	Livestock Specialised Services		2,301	2,301							
NAA-1-1	① Livestock Census	B	1,048	1,048							
NLL-5-1	② National Disease Survey	B	110	110							
NLM-2	Marketing Survey	A	143	143							
NLL-5-2	③ Consultancy Services (Study)	A	1,000	1,000							
	Total	**	92,802	78,114	1,206	3,251	3,398	6,717	118		

NOTE: *The government will subsidize the amount through COMPANY.
** This amount means the total required cost for the implementation of project.
Governmental share is total MAF budget(78,114) and PAMAP budget(1,206).

Table 5.2.26 Budget of Distribution Sector by Finance Source
- 10-Year Plan

DESCRIP PROJECT NUMBER	NAME OF PROJECT/PROGRAM	PRIO.	TOTAL COST (LBBERO)	STATE GENERAL BUDGET				SHARED WITH PRIVATE	SELF	OTHERS	REMARKS
				TOTAL	MAP	PAPAP	OBAP				
ND-1	NA-1 ESTABLISHMENT OF WHOLESALE MARKET (STUDY)	A	322	322							
	NA-1-1 STUDY ON ESTABLISHING WHOLESALE MARKET		218	218							
	NA-1-2 STUDY ON EXPANSION OF DISTRIBUTION VOLUME IN PAPAP		33	33							
	NA-1-3 IMPLEMENTATION ON EXPANSION OF DISTRIBUTION VOLUME IN PAPAP		-	-							
	NA-1-4 TRAINING STAFFS FOR IMPLEMENTATION OF THE PILOT		79	79							
	NA-2 PILOT WHOLESALE MARKET	A	322	322							
	NA-2-1 OPERATION OF PILOT WHOLESALE MARKET (SUPPORT BY CONSULTANT)		288	288							
	NA-2-2 DETAIL DESIGN ON WHOLESALE MARKET		616	616							
	NA-3 CONSTRUCTION AND OPERATION OF WHOLESALE MARKET	A	23,925	17,109					5,925		
	NA-3-1 CONSTRUCTION OF WHOLESALE MARKET		6,348	5,348							
PHASE-1 MUTTRAH		2,528	2,528								
PHASE-2 SEEB		1,844	1,844								
PHASE-3 SALALAH		1,978	1,978								
NA-3-2 CONSTRUCTION OF WHOLESALE MARKET (SUPERVISION BY CONSULTANT)		316	316								
PHASE-1 MUTTRAH		128	128								
PHASE-2 SEEB		92	92								
PHASE-3 SALALAH		98	98								
NA-3-3 SUBSIDY FOR REMUNERATION OF OPERATION IN WHOLESALE MARKET		7,000	1,975					5,025			
PHASE-1 MUTTRAH		3,200	800					2,400			
PHASE-2 SEEB		2,200	550					1,650			
PHASE-3 SALALAH		629	629					1,875			
NA-3-4 STUDY & D/D ON LOCAL WHOLESALE MARKET		6,486	6,486								
NA-3-5 CONSTRUCTION OF LOCAL WHOLESALE MARKET		1,844	1,844								
PHASE-1 SOHAR		1,399	1,399								
PHASE-2 SUR		1,399	1,399								
NA-3-6 CONSTRUCTION OF LOCAL WHOLESALE MARKET (SUPERVISION BY CONSULTANT)		322	322								
PHASE-1 SOHAR		92	92								
PHASE-2 SUR		63	63								
PHASE-3 MIZWA		69	69								
NA-3-7 SUBSIDY FOR REMUNERATION OF OPERATION IN LOCAL WHOLESALE MARKET		550	550								
PHASE-1 SOHAR		275	275								
PHASE-2 SUR		275	275								
PHASE-3 MIZWA		474	474								
NA-3-8 TRAINING STAFFS FOR OPERATION OF WHOLESALE MARKETS (SUPPORT)		474	474								
ND-2	NA-4 BASIC DATA COLLECTING PROGRAM	A	248	248							
	NA-4-1 BASIC DATA COLLECTING PROGRAM (STUDY)		98	98							
	NA-4-2 BASIC DATA COLLECTING PROGRAM (EQUIPMENT)		43	43							
	NA-4-3 BASIC DATA COLLECTING PROGRAM (SUPPORT BY CONSULTANT)		47	47							
	NA-4-4 PREPARATION & PUBLICATION OF SUPPLY AND DEMAND FORECAST		26	26							
	NA-4-5 INTRODUCTION FOR PRICING POLICY (STUDY)		26	26							
NA-5 PREPARATION & PUBLICATION OF SUPPLY AND DEMAND FORECAST (SUPPORT)	A	144	144								
NA-6 MEASURES FOR ADJUSTMENT OF SUPPLY AND DEMAND (STUDY)	A	60	60								
NA-7 ESTABLISHMENT OF SHIPPING ORGANIZATION FOR FARMERS (STUDY)	A	168	168								
NA-8 ESTABLISHMENT OF SHIPPING ORGANIZATION FOR FARMERS (SUPPORT)	A	1,068	1,068								
NA-8-1 ESTABLISHMENT OF SHIPPING ORGANIZATION FOR FARMERS (SUPPORT)		60	60								
NA-8-2 ESTABLISHMENT OF SHIPPING ORGANIZATION FOR FARMERS (EQUIPMENT)		1,008	1,008								
NA-9 STRENGTH PROGRAM FOR MAIN DISTRIBUTION CHANNELS IN PAPAP (STUDY)	A	498	498								
NA-10 STRENGTH PROGRAM FOR MAIN DISTRIBUTION CHANNELS IN PAPAP	A	9,609	9,609								
TOTAL		35,992	30,087					5,925			

Table 5.2.27 Budget of Agricultural Produce Processing Sector
by Finance Source - 10-Year Plan

PROJECT NUMBER	NAME OF PROJECT/PROGRAM	TOTAL BUDGET (1000000)	STATE GENERAL BUDGET			SHARED WITH PRIVATE		SELF FINANCE	OTHERS	REMARKS
			MAF	PAMP	DDAF	PRIVATE	OTHERS			
NP-1	Establishment of Private Company for Agro-Industry and Supply of Agricultural Inputs and Services	10,100	5,100			3,000	2,000			
NP-2	Establishment of Agro-Industrial Complex for Processing of Dates, Limes and Tomatoes	7,048	1,410	1,410		3,524	2,114			
NP-3	Establishment of Pickling and Vinegar-Processing Plant	2,452	1,782			419	251			
NP-4	Establishment of Coconut-Processing Plant	4,730	2,325	2,325		1,315	789			
	Coconut Farm	2,100	2,100							
	Coconut-Processing Plant	2,930	526	526		1,315	788			
TOTAL	DEVELOPMENT BUDGET TOTAL	24,330	10,918	10,918		8,258	5,154			

Table 5.2.28 Budget of Inter-Sectoral Projects by Finance Source
- 10-Year Plan

PROJECT NUMBER	NAME OF PROJECT/PROGRAM	TOTAL BUDGET	STATE GENERAL BUDGET			SHARED WITH PRIVATE		SELF FINANCE	OTHERS	REMARKS
			MAF	PAMP	DDAF	PRIVATE	OTHERS			
NI-1	Integrated Agricultural Development Project in Nejd	16,953	16,953							
	1) Pilot Farm (50ha)	1,655	1,655							
	2) Main Development Project (450ha)	14,008	14,008							
NI-3	Improvement and Maintenance of MAF Facilities	20,931	20,931							
	1) Ministry Building	5,191	5,191							
	2) Office Building for Directorate General of Agriculture in 6 Regions	7,000	7,000							
	3) Separate Consolidated Allocation for all Consultancies	8,000	8,000							
NI-3	Artificial Rainfall Project	2,500	2,500							
OI-1	Citizen's Compensation against Natural Crisis	3,000	3,000							
OI-2	Master Plan for Development of Date Palm Cultivation	600	600							
TOTAL	DEVELOPMENT BUDGET TOTAL	43,044	43,044							

Table 5.3.1 Budget Total - 10-Year Plan (Alternative 1)

SECTOR	PROJECT NUMBER	NAME OF PROJECT/PROGRAM	TOTAL BUDGET (1000RO)
Irrigation and Dam			186,107
	NW-1	Improvement of Irrigation System and Centrally-Controlled Water-Distribution System	26,370
	NW-2	Subsidy for New Irrigation System Project	31,250
	NW-3	Legal Framework for Agricultural Water Use	250
	NW-4	Recharge Dams	79,240
	NW-5	Sub-surface (Underground) Dams	5,000
	NW-6	Aflaj	22,520
	NW-7	Wells	5,100
	NW-8	Springs	4,087
	NW-9	Erosion Control and Protection of Agricultural Land against Floods	6,510
	NW-10	Survey and Monitoring	5,780
Agricultural Research			18,200
	NAR-1	Support for Agricultural Research Stations	5,300
	NAR-2	Establishment of New Research Units and Laboratories	5,600
	NAR-3	Development and Establishment of Experimental Farms and Nurseries	2,000
	NAR-4	Forestry-Improvement Program	2,000
	NAR-5	Establishment of Locust Survey and Central Unit	2,000
	NAR-6	Soil Surveys	1,300
Agricultural Extension			23,050
	NAE-1	Improvement and Development of Extension Centers and Facilities	3,520
	NAE-2	Establishment of Development Support Communication Center(DSCC)	1,190
	NAE-3	Training of Researchers, Extension Staff and Statistics Staff	2,520
	NAE-4	Intensive Extension Guidance Program	15,820
Agricultural Production			21,860
	NAA-1	Collection and Organization of Agricultural Statistics	2,060
	NAA-2	Agricultural Exhibitions and Festivals	1,400
	NAA-3	National Project for Plant Protection and Aerial Spraying	7,500
	NAA-4	Agricultural Technology Transfer to Farmers Project	10,000
	NAQ-1	Development and Improvement of Plant Quarantine	900
Livestock			72,520
	NLL-1	Rangeland Revegetation Project in Southern Region	3,552
	NLL-2	Animal Health and Disease Control Project	29,367
	NLE-1	Livestock Extension Development Project	632
	NLR-1	Livestock Research Development Project	6,050
	NLW-1	Livestock Marketing Improvement Project	7,604
	NLL-3	Livestock Input Company Project	1,359
	NLL-4	Small Farm Development Support Project	21,655
	NLL-5	Livestock Specialized Services Program	2,301
Distribution			30,067
	ND-1	Establishment of Wholesale Market	18,326
	ND-2	Supply and Demand Forecast of Agricultural Produce	444
	ND-3	Establishment of Shipping Organization for Farmers	1,220
	ND-4	Fortification of PAHAP	10,077
Agricultural Produce Processing			10,918
	NP-1	Establishment of Private Company for Agro-Industry and Supply of Agricultural Inputs and Services	5,100
	NP-2	Establishment of Agro-Industrial Complex for Processing of Dates, Limes and Tomatoes	1,410
	NP-3	Establishment of Pickling and Vinegar-Processing Plant	1,782
	NP-4	Establishment of Coconut-Processing Plant	2,626
Inter-Sectoral			41,144
	NI-1	Integrated Agricultural Development Project in Nejd	16,553
	NI-2	Improvement and Maintenance of MAF Facilities	20,991
	NI-3	Artificial Rainfall Project	
	OI-1	Citizen's Compensation against Natural Crisis	3,000
	OI-2	Master Plan for Development of Date Palm Cultivation	600
Total			403,866

Table 5.3.3 Annual Budget of Irrigation and Dam Sector
- 10-Year Plan (Alternative 1)

PROJECT NUMBER	NAME OF PROJECT/PROGRAM	PRIO.	TOTAL BUDGET (1000RO)	ANNUAL BUDGET REQUIREMENT										1991 - 1995	1991 - 2000
				1991	1992	1993	1994	1995	1996	1997	1998	1999	2000		
NW-1	Improvement of Irrigation System and Centrally-Controlled Water-Distribution System Study Phase (P/S/F/S)	A	26,370	620	920	3,680	5,790	7,020	3,120	2,520	1,120	1,920	560	18,030	8,340
			1,780	320	420	180	128	128	128	120	120	60	60	1,160	540
			24,670	300	500	3,500	5,678	6,900	3,000	2,400	1,000	900	500	16,870	7,800
NW-2	Subsidy for New Irrigation System Project for 25,000ha	A	31,250	2,500	2,500	3,750	3,750	3,750	3,750	3,750	2,500	2,500	2,500	16,250	15,000
NW-3	Legal Framework for Agricultural Water Use	A	250	45	45			80			40	40	170	80	
NW-4	Recharge Dams	A	79,240	8,300	8,300	8,575	8,708	8,750	8,275	7,825	7,500	7,370	5,645	42,625	36,615
NW-4-1	Groundwater-Recharge Scheme Study Phase		5,940	700	700	700	700	700	600	500	500	370	3,500	2,440	
			59,400	6,600	6,700	6,700	6,700	6,300	5,700	5,400	5,300	2,500	2,500	26,200	26,200
NW-4-2	Maintenance and Improvement of Existing and Newly Constructed Dams		7,400	250	425	550	700	825	975	1,050	1,150	1,225	2,175	5,225	
NW-4-3	Recharged Water Effective Use Pilot Project(Study)		500	50	50	50	50	50	50	50	50	50	250	250	
NW-4-4	Identification of New Groundwater-Recharge Schemes		6,800	700	700	700	700	700	500	500	500	500	3,500	2,500	
NW-5	Sub-Surface (Underground) Dams Reconnaissance Study	A	5,000	75	100	100	100	1,965	1,215	1,240	15	15	15	2,500	2,500
			75	75									75		
			150	100	50								150		
			300	100	150								300		
			4,225	30	30	15	15	1,900	1,200	1,225	1,900	1,900	2,425		
			150										150		
NW-6	Afaj	A	22,520	1,550	2,510	2,470	2,470	2,470	2,470	2,470	1,970	1,970	1,670	10,850	
NW-6-1	Repair and Maintenance of Afaj		12,000	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	6,000	6,000	
NW-6-2	Distribution System Improvement Pilot Project in Oasis(Study)		1,500	150	150	150	150	150	150	150	150	150	750	750	
NW-6-3	Improvement and Maintenance of Major Afaj Study		1,520	200	300	100	120	120	120	120	120	120	820	800	
			7,500	1,000	1,000	1,000	1,000	1,000	1,000	1,000	500	500	4,000	3,500	
NW-7	Wells	A	5,100	510	510	510	510	510	510	510	510	510	2,550	2,550	
NW-7-1	Subsidy for Repair of Existing Open Wells		1,100	110	110	110	110	110	110	110	110	110	550	550	
NW-7-2	Assistant Wells for Afaj		4,000	400	400	400	400	400	400	400	400	400	2,000	2,000	
NW-8	Springs	A	4,887	370	378	416	430	400	405	407	446	460	1,869	2,119	
NW-8-1	Improvement of Springs		3,500	350	350	350	350	350	350	350	350	350	1,750	1,750	
NW-8-2	Annual Maintenance of Open Channel for Spring		587	20	28	66	80	50	55	57	96	110	219	368	
NW-9	Erosion Control and Protection of Agricultural Land Against Floods	A	6,510	70	700	1,040	1,030	970	550	550	540	500	3,870	2,640	
			410	70	50	50	50	50	50	50	40		270	140	
			6,100	710	990	980	920	500	500	500	500	500	3,600	2,500	
NW-10	Survey and Monitoring	A	5,700	1,107	1,137	1,241	330	316	316	316	208	208	308	4,224	1,556
NW-10-1	Long-term Plan for Areal Photography and Ortho-photo Mapping		2,200	250	217	217	217	217	217	217	217	217	218	1,116	1,062
NW-10-2	Establishment and Operation of hydrological Monitoring Network for Recharge Dams		3,500	947	920	1,024	116	99	99	99	92	92	92	3,106	474
TOTAL	DEVELOPMENT BUDGET TOTAL		186,187	15,192	17,317	21,909	23,179	26,261	20,606	19,586	14,870	14,870	12,508	103,858	82,249

Table 5.3.4 Comparison of Full Plan with 'Alternative 1' Plan in Irrigation and Dam Sector

PROJECT NUMBER	NAME OF PROJECT/PROGRAM	FULL PLAN			ALTERNATIVE (1)		
		VOLUME	UNIT	TOTAL BUDGET (1000RO)	VOLUME	UNIT	TOTAL BUDGET (1000RO)
NW-1	Improvement of Irrigation System and Centrally-Controlled Water-Distribution System			60,990			26,370
	Study Phase	21	Studies	2,420	15	Studies	1,700
	Pilot Project	6,500	ha	58,570	2,500	ha	24,670
NW-2	Subsidy for New Irrigation System Project for 30,000ha	30,000	ha	37,500	25,000	ha	31,250
NW-3	Legal Framework for Agricultural Water Use	3	Studies	250	3	Studies	250
NW-4	Recharge Dams			86,633			79,240
NW-4-1	Groundwater-Recharge Scheme						
	Study Phase	42	Dams	6,520	38	Dams	5,940
	Construction Phase	42	Dams	65,200	38	Dams	59,400
NW-4-2	Maintenance and Improvement of Existing and Newly Constructed Dams	1	Item	8,413	1	Item	7,400
NW-4-3	Recharged Water Effective Use Pilot Project(Study)	4	Studies	500	4	Studies	500
NW-4-4	Identification of New Groundwater-Recharge Schemes	1	Item	6,000	1	Item	6,000
NW-5	Sub-Surface (Underground) Dams			5,000			5,000
	Reconnaissance Study	1	Study	75	1	Study	75
	Preliminary Study	1	Study	150	1	Study	150
	Feasibility Study	2	Study	300	2	Study	300
	Pilot Project(Construction)	2	Dam	4,325	2	Dam	4,325
	Observation and Monitoring	1	Item	150	1	Item	150
NW-6	Aflaj			113,420			22,520
NW-6-1	Repair and Maintenance of Aflaj	3,000	Aflaj	90,000	400	Aflaj	12,000
NW-6-2	Distribution System Improvement Pilot Project in Oasis(Study)	10	Studies	1,500	10	Studies	1,500
NW-6-3	Improvement and Maintenance of Major Aflaj						
	Study	40	Studies	1,920	30	Studies	1,520
	Construction	40	Aflaj	20,000	15	Aflaj	7,500
NW-7	Wells			30,240			5,100
NW-7-1	Subsidy for Repair of Existing Open Wells	10,240	Wells	10,240	1,100	Wells	1,100
NW-7-2	Assistant Wells for Aflaj	500	Wells	20,000	100	Wells	4,000
NW-8	Springs			5,914			4,087
NW-8-1	Improvement of Springs	300	Springs	5,250	200	Springs	3,500
NW-8-2	Annual Maintenance of Open Channel for Spring	1	Item	664	1	Item	587
NW-9	Erosion Control and Protection of Agricultural Land against Floods			11,510			6,510
	Study Phase	15	Studies	410	15	Studies	410
	Construction Phase	19	Projects	11,100	9	Projects	6,100
NW-10	Survey and Monitoring			5,940			5,780
NW-10-1	Long-term Plan for Areal Photography and Ortho-photo Mapping	1	Item	2,200	1	Item	2,200
NW-10-2	Establishment and Operation of hydrological Monitoring Network for Recharge Dams	1	Item	3,740	1	Item	3,580
TOTAL	DEVELOPMENT BUDGET TOTAL			357,397			186,107

Table 5.3.5 Annual Budget of Agricultural Research Sector
- 10-Year Plan (Alternative 1)

PROJECT NUMBER	PRIO.	TOTAL BUDGET (1000R0)	NAME OF PROJECT/PROGRAM	ANNUAL BUDGET										1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1991-1995	1996-2000
				1991	1992	1993	1994	1995	1996	1997	1998	1999	2000												
NAR-1		5,300	SUPPORT FOR AGRICULTURAL RESEARCH STATIONS	1,035	640	395	325	315	828	493	423	423	423	423	423	423	423	423	423	423	2,710	2,590			
NAR-1-1	A	1,100	AGRICULTURAL RESEARCH FACILITIES AT RUMAIS	200	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	600	500			
NAR-1-2	A	850	AGRICULTURAL RESEARCH FACILITIES AT JEMAH	350	70	70	60	50	50	50	50	50	50	50	50	50	50	50	50	50	600	250			
NAR-1-3	A	1,000	AGRICULTURAL RESEARCH FACILITIES AT SALALAH	350	130	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	675	325			
NAR-1-4	A	300	AGRICULTURAL RESEARCH FACILITIES AT SOHAR	60	300	120	60	60	60	60	60	60	60	60	60	60	60	60	60	60	600	300			
NAR-1-5	A	350	AGRICULTURAL RESEARCH FACILITIES AT SHARQIYA	75	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	235	615			
NAR-1-6	A	600	AGRICULTURAL RESEARCH FACILITIES AT DHAKIRA						250	140	70	70	70	70	70	70	70	70	70	0	600				
NAR-2		5,800	ESTABLISHMENT OF NEW RESEARCH UNITS AND LABORATORIES	875	690	410	580	520	485	570	640	415	415	415	415	415	415	415	415	415	3,075	2,525			
NAR-2-1	A	800	AGRICULTURAL MACHINERY RESEARCH UNIT AT RUMAIS	215	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	475	325			
NAR-2-2	A	300	TOXICOLOGY LABORATORY (RUMAIS)	75	100	30	15	13	13	13	13	13	13	13	13	13	13	13	13	13	235	65			
NAR-2-3	A	650	SEED AND TUBER PRODUCTION RESEARCH UNIT (RUMAIS)	20	20	20	20	10	255	125	100	100	100	100	100	100	100	100	100	70	580				
NAR-2-4	A	300	CENTRAL SOIL, PLANT AND WATER ANALYSIS LABORATORY (RUMAIS)	300	75	75	75	75	40	40	40	40	40	40	40	40	40	40	40	40	600	200			
NAR-2-5	A	250	LIBRARY AND DOCUMENTATION CENTER (RUMAIS)	160	30	25	25	25	2	2	2	2	2	2	2	2	2	2	2	2	240	10			
NAR-2-6	A	100	PLANT WATER REQUIREMENT DETERMINATION UNIT (SALALAH)	100																	100	0			
NAR-2-7	A	75	MEDICAL AND PERFUME PLANT RESEARCH UNIT (SALALAH)																		75	0			
NAR-2-8	A	100	DISEASE AND PEST FORECASTING UNIT (RUMAIS)						15	15	15	15	15	15	15	15	15	15	15	15	100	0			
NAR-2-9	A	650	SALT TOLERANT PLANTS AND HALOPHYTES RESEARCH UNITS (RUMAIS)																		100	0			
NAR-2-10	A	200	HONEY BEE LABORATORY (RUMAIS)	50	25	25	20	20	20	20	20	20	20	20	20	20	20	20	20	20	200	450			
NAR-2-11	A	100	HONEY BEE RESEARCH UNIT (SALALAH)	20	15	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	140	60			
NAR-2-12	A	75	HONEY BEE RESEARCH UNIT (JEMAH)	15	15	15	10	5	5	5	5	5	5	5	5	5	5	5	5	5	65	35			
NAR-2-13	A	1,500	DATE PALM RESEARCH UNIT (RUMAIS)	200	115	95	195	195	60	260	260	60	60	60	60	60	60	60	60	60	800	700			
NAR-3		2,000	DEVELOPMENT AND ESTABLISHMENT OF EXPERIMENTAL FARMS AND NURSERIES	120	270	295	195	180	288	273	143	138	118	118	118	118	118	118	118	118	1,040	960			
NAR-3-1	A	200	DEVELOPMENT OF ARABIC COFFEE EXPERIMENTAL FARM IN SALALAH						40	10	10	9	9	9	9	9	9	9	9	135	65				
NAR-3-2	A	300	DEVELOPMENT OF NURSERIES AT RUMAIS AND BARKA	120	40	30	20	10	30	20	10	10	10	10	10	10	10	10	10	220	80				
NAR-3-3	A	150	DEVELOPMENT OF NURSERIES AT SOHAR	40	40	20	20	20	20	6	16	16	6	6	6	6	6	6	6	100	50				
NAR-3-4	A	400	DEVELOPMENT OF NURSERIES IN INTERIOR	150	80	80	40	30	20	20	20	20	20	20	20	20	20	20	20	300	100				
NAR-3-5	A	150	DEVELOPMENT OF NURSERIES IN SOUTHERN REGION	40	40	20	20	20	16	16	6	6	6	6	6	6	6	6	6	100	50				
NAR-3-6	A	150	DEVELOPMENT OF EXPERIMENTAL FARM AT WADI GURIYAT	65	25	25	25	4	4	4	9	14	4	4	4	4	4	4	4	115	35				
NAR-3-7	A	100	DEVELOPMENT OF EXPERIMENTAL FARM AT MUSANDAM	30	30	25	15	15	3	3	3	3	3	3	3	3	3	3	3	70	30				
NAR-3-8	A	300	DEVELOPMENT OF EXPERIMENTAL FARM AT SHARQIYA						190	30	30	25	25	25	25	25	25	25	25	0	300				
NAR-3-9	A	350	DEVELOPMENT OF EXPERIMENTAL FARM AT DHAKIRA							145	35	35	35	35	35	35	35	35	35	0	250				
NAR-4	A	2,000	FORESTRY-IMPROVEMENT PROGRAM	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	1,000	1,000			
NAR-5	A	2,000	ESTABLISHMENT OF LOCUST SURVEY AND CENTRAL UNIT (RUMAIS, ALL REGION)	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	1,000	1,000			
NAR-6	A	1,300	SOIL SURVEYS																		900	500			
TOTAL		19,200	DEVELOPMENT BUDGET TOTAL	2,430	2,200	1,700	1,700	1,595	2,101	1,836	1,786	1,476	1,456	1,456	1,456	1,456	1,456	1,456	1,456	1,456	9,625	8,575			

Table 5.3.8 Annual Budget of Livestock Sector
- 10-Year Plan (Alternative 1)

Number of Project	Name of the Project	Project Period	Annual Budget										Total	91-95 Plan	96-2000 Plan		
			1991	1992	1993	1994	1995	1996	1997	1998	1999	2000					
NLL-1	Rangeland Revegetation Project in Southern Region		576	576	400	400	400	400	400	240	240	240	240	240	2,352	2,352	1,200
NLL-1-1	① Establishment of Rangeland Management	2	176	176											352	352	0
NLL-1-2	② Grazing Control	10	400	400	400	400	400	400	400	240	240	240	240	240	2,000	2,000	1,200
NLL-2	Animal Health & Disease Control Project		2,939	2,772	2,931	3,333	3,213	2,530	2,745	2,893	2,944	2,939	29,387	15,184	14,173		
NLL-2-1	① Development of New Substrains	5	395	395	395	395	395								1,975	1,975	
NLL-2-2	② Animal Clinics Improvements	5	238	238	238	238	238								1,190	1,190	
NLL-2-3	③ Laboratory Development	-	368	28	28	283	30	30	30	30	30	30	30	30	810	809	150
NLL-2-4	④ CCP Vaccine Development	3			30	30	30								90	90	0
NLL-2-5	⑤ National Vaccination	10	1,271	1,395	1,525	1,660	1,789	1,943	2,092	2,248	2,291	2,335	18,559	7,651	18,000		
NLL-2-6	⑥ Supplies of Veterinary Equipment	10	600	600	600	600	600	600	600	600	600	600	600	600	5,500	5,500	2,500
NLL-2-8	⑧ Brucellosis Control in South	10	123	123	123	123	123	123	123	123	123	123	123	123	1,230	1,230	615
NLE-1	Livestock Extension Development		190	30	30	180	30	30	30	30	30	30	30	30	632	482	150
NLE-1-1	① Extension Method Improvements	10	30	30	30	30	30	30	30	30	30	30	30	30	300	150	150
	- Demonstration of Using Equipment																
	- Visual Extension																
	- Establishment of Demonstration Unit																
NLE-1-2	② Training Center Development	-	160			160									332	332	
NLR-1	Livestock Research Development		837	792	792	792	837	400	400	400	400	400	400	400	6,050	4,950	2,000
NLR-1-1	① Development of Livestock Research Centers	10	400	400	400	400	400	400	400	400	400	400	400	400	4,000	2,000	2,000
NLR-1-2	② Research Centers Management Consultancy	5	437	392	392	392	437								2,050	2,950	
NLM-1	Livestock Marketing Improvement Project		575	1,661	272	1,734	1,509	1,067	190	30					7,004	6,371	1,233
NLM-1-1	① Company for Livestock Products	7	50	80	200	200	200	100	100	100	100	100	100	100	1,710	1,510	200
NLM-1-2	② Cattle Fattening	3			50	130	730	30	30	30	30	30	30	30	970	160	799
NLM-1-3	③ Cut Meat Processing	3			171	316	50								537	487	50
NLM-1-4	④ Milk Collecting and Processing	0	20	211	82	729	108	31							1,192	1,101	91
NLM-1-5	⑤ Hides and Skins Development	3				132	64		6						202	132	70
NLM-1-6	⑥ Cattle Destocking Subsidy	5	500	500	500	500	500							2,500	2,500	0	
NLM-1-7	⑦ Marketing Promotion	5	84	84	84	84	84	84						418	335	83	
NLL-3	Livestock Input Company Project	2		376	983										1,359	1,359	
NLL-4	Small Farm Development Support Project		3,000	3,028	3,048	3,078	3,098	1,274	1,274	1,274	1,274	1,274	1,274	1,274	21,655	15,385	6,370
NLL-4-1	① Smallholder Poultry Production	5	1,761	1,754	1,772	1,794	1,794								8,855	8,855	
NLL-4-2	② Intensive Livestock Production	10	1,274	1,274	1,274	1,274	1,274	1,274	1,274	1,274	1,274	1,274	1,274	1,274	12,740	6,370	6,370
NLL-4-3	③ A.I. Services for Dairy Cow	-	30			30									60	60	
NLL-5	Livestock Specialized Services		772	111	111	111	111	636	111	111	111	111	111	111	2,301	1,222	1,079
NAA-1-1	① Livestock Census	2	524					524							1,048	524	524
NLL-5-1	② National Disease Survey	10	11	11	11	11	11	11	11	11	11	11	11	11	110	55	55
NLM-2	③ Marketing Survey	1	143												143	143	0
NLL-5-2	④ Consultancy Services (Study)	10	100	100	100	100	100	100	100	100	100	100	100	100	1,000	500	500
	Total		8,860	9,348	9,185	9,650	9,188	6,242	4,984	4,984	4,984	4,984	4,984	4,984	72,520	46,815	26,205
	Percentage														63.9	36.1	